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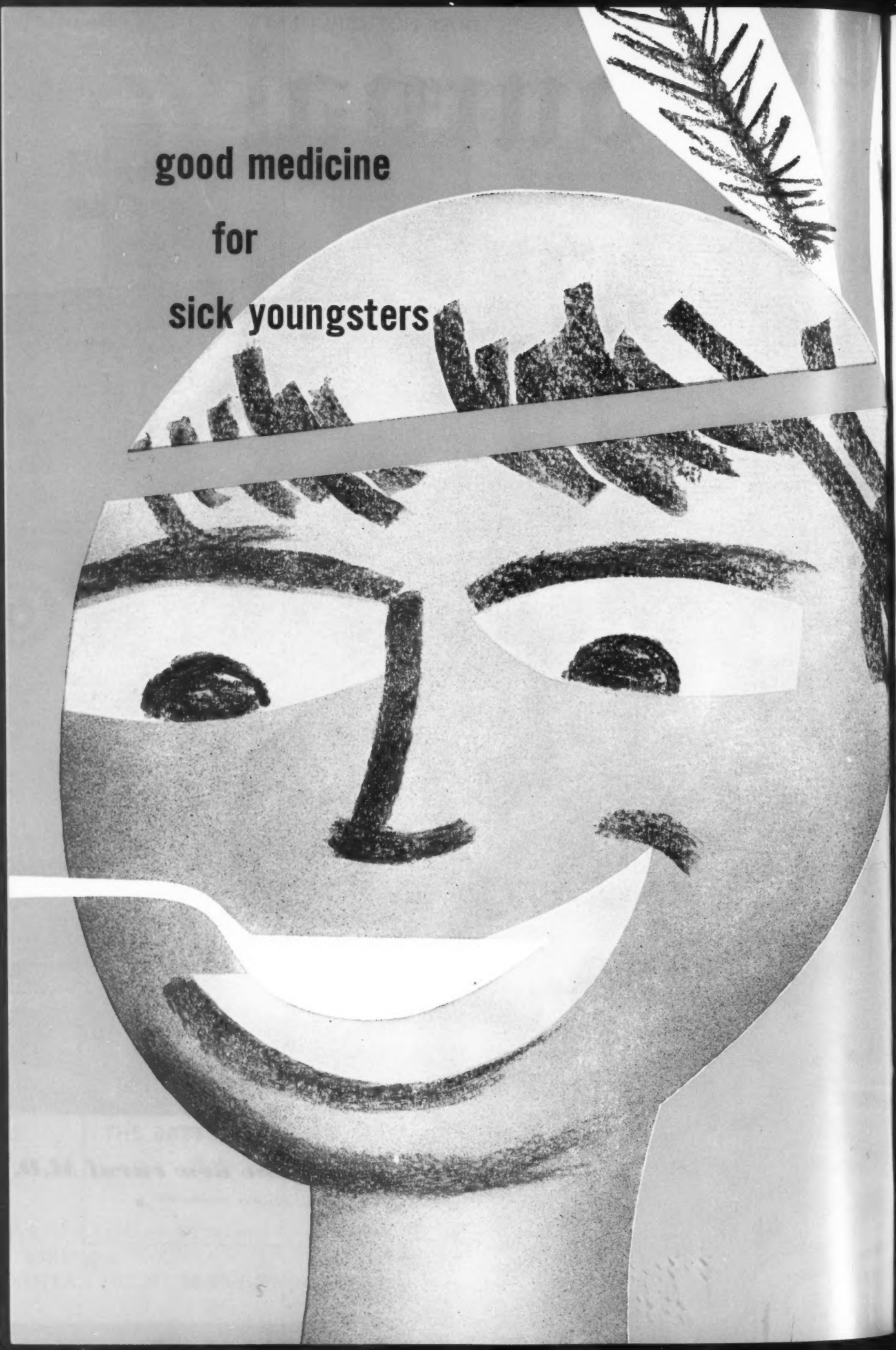
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of the Michigan State Medical Society

VOLUME 55 MAY, 1956 NUMBER 5

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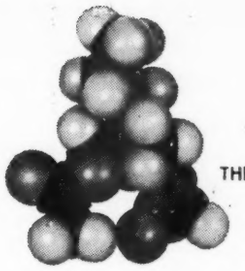

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HIGHLIGHTS OF THE EXECUTIVE COMMITTEE OF THE COUNCIL

Meeting of March 9, 1956

- **President Jones** reported on the February 23-24 meeting with Veterans Administration officials re continuance of the "Home Town Medical Care" Program for Veterans. The President reported that VA will reconsider the proposed discontinuance of this successful program in Michigan.
- **Committee Reports.**—The following were given consideration: (a) Iodized Salt, meeting of February 8; (b) Maternal Health Committee, February 22; (c) Mental Health Committee, February 29; (d) Hospital Relations Committee, February 29; (e) Rheumatic Fever Control Committee, February 29; (f) Committee on Prevention of Highway Accidents, March 1. Also briefed by Chairman W. B. Harm, M.D., was the February 22 meeting of the Committee on Arrangements for the March 8 Testimonial Luncheon.
- **A letter of congratulations** to the Hawaiian Medical Society on its Centennial (April 22-29, 1956) was authorized.
- **An "Atlas of Diseases of the Chest,"** proposed by the Chairman of the Tuberculosis Control Committee, was approved. The financial sponsorship is to be assumed by the Michigan Tuberculosis Association.
- **Letter from Governor G. Mennen Williams** asking for opinion on the health proposals he placed before the 1956 Legislature was referred to President Jones for reply.
- **Beaumont Memorial**—A letter to Governor Williams from the chairman of the MSMS Beaumont Memorial Committee, Otto O. Beck, M.D., Birmingham, was approved.
- **M. A. Darling, M.D.,** Detroit, President of the Wayne County Medical Society, was chosen as official MSMS representative to the Michigan State Dental Association Centennial meeting, Detroit, April 15-19.
- **1956 Michigan Clinical Institute.**—Chairman D. Bruce Wiley, M.D., reported the attendance as 2,477, including 1,403 doctors of medicine, 401 guests, 376 exhibitors, and 277 operating room supervisors. The Executive Committee of The Council expressed thanks to all who contributed in any way to the success of the MCI, especially General Chairman L. W. Hull, M.D., Program Chairman Wm. S. Reveno, M.D., and Testimonial Luncheon Chairman W. B. Harm, M.D., all of Detroit.
- **Legal Counsel J. Joseph Herbert** presented a report of the Kopprasch case (Allegan County), and upon the legal phases in an ethical matter arising in Southeastern Michigan.
- **R. W. Teed, M.D.,** Ann Arbor, was appointed as MSMS representative to the Advisory Council of the University of Michigan Chapter of Student AMA.
- **Matters of mutual interest** were presented by Michigan Health Commissioner A. E. Heustis, M.D.
- **The Secretary** was instructed to inform all committees that they shall clear all their recommendations—especially those having legislative import—through The Council or its Executive Committee before final action is taken by committees, or before a member of a committee appears before a legislative body to represent the Michigan State Medical Society.

PRINCIPLES TO GUIDE RELATIONSHIP BETWEEN PHYSICIANS AND HOSPITALS

Report of Joint Committee of Boards of Trustees of American Medical Association and of American Hospital Association, 1953

1. The general purpose of hospitals and physicians is to aid each other in the delivery of the best possible medical care to patients. To attain such a purpose requires full co-operation among medical staffs, governing boards and administrative heads of hospitals. One important method of attaining this objective is that duly designated representatives of the medical staff shall have free and direct access to the governing board with due consideration to the position of the administrator as chief executive officer of the hospital. The various methods by which the medical staff may have access to the hospital governing board follow. These methods are not listed in the order of their desirability, and there may be other acceptable liaison plans developed depending upon local conditions.

(a) The executive committee of the medical staff and a committee of the governing board with the hospital administrator can serve as a joint committee.

(b) Representatives of the medical staff can serve as members of the medical staff committee of the governing board with the hospital administrator.

(c) Representatives elected by the medical staff can attend meetings of the hospital governing board.

(d) Members of the medical staff can be members of the hospital governing board.

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PRINCIPLES TO GUIDE RELATIONSHIP BETWEEN PHYSICIANS AND HOSPITALS

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2. The professional evaluation of chiefs of service and members of the medical staff should be the responsibility of the medical profession. The method of selection of these individuals must be subject to local arrangement and local conditions. In any such arrangement, however, the principle of the freedom of the staff to make recommendations, subject to the approval of the hospital governing board, should be recognized.

3. The medical profession and the hospitals recognize that certain special services, such as, anesthesiology, pathology, radiology, and physical medicine are integral parts of the practice of medicine and of the services necessary for hospital patients. Physicians in these fields should have the professional status of other members of the medical staff. Chiefs in these specialties must assume also the administrative responsibilities and relationships customarily associated with such positions.

4. The right of an individual to develop the terms of his services on the basis of local conditions and needs is recognized but such contractual arrangements should in all cases ensure (a) the policy of professional incentive for the physician, and (b) progressive development of the hospital departments involved, in order that increasingly improved services to patients may be rendered. Moreover, a physician shall not dispose of his professional attainments or services to any hospital, lay body, organization, group, or individual, by whatever name called, or however organized, under terms or conditions which permit exploitation of the patient, the hospital, or the physician.

5. The chief of a hospital department may have access to financial information regarding his department.

6. It is desirable that means should be provided at local, state and national levels for review of problems of individual hospital-physician relationhsip by organized medical and hospital groups.

USPHS RESERVE

The Surgeon General of the United States Public Health Service, Dr. Leonard A. Scheele, has announced that qualified physicians and other professional health personnel actively engaged in public health practice and preventive medicine are being encouraged to apply for commissions in the Service's expanding Commissioned Reserve.

Dr. Scheele said the Commissioned Reserve is being expanded to increase the nation's readiness to meet the unusual public health demands of national emergencies and that the Public Health Service is interested in encouraging greater participation in the program by professional groups. Physicians, nurses, sanitary engineers, and dentists make up the majority of officers now in the Commissioned Reserve.

In the event of national emergencies, the Surgeon General explained, the Commissioned Reserve, composed of qualified professional health personnel, would have the opportunity of serving their country in the capacities for which their professional training and experience have fitted them.

Commissioned Reserve officers will be called for emergency duty primarily to reinforce the staffs of official State and local health agencies and to augment the Public Health Service operating staff.

Dr. Scheele also pointed out that no Commissioned Reserve officer will be called to emergency active duty, with the exception of volunteers, unless the situation is publicly recognized as requiring such action.

Expansion of the Commissioned Reserve began approximately 18 months ago as the result of a delegation of authority from the Federal Civil Defense Administration. The delegation authorized the Public Health Service to proceed on three main fronts: Intensify research on the detection and control of diseases associated with major national disasters; develop a program to assist State and local health departments in emergency restoration of basic health services; expand and reorganize the Commissioned Reserve for rapid mobilization in the event of enemy attack or other national crisis.

All interested personnel are invited to write to the Surgeon General, Public Health Service (DP), Washington 25, D. C., for information about the Commissioned Reserve.

SALK POLIO VACCINE

On March 13, 1956, the Surgeon General of the U. S. Public Health Service issued a statement endorsing the postponement of "booster shots" as a temporary measure "to enable more children to receive first or second doses and thus extend protection to more people before this summer's poliomyelitis season."

On the basis of reports from manufacturers and the Surgeon General of the U. S. Public Health Service concerning estimated vaccine production, it is believed that an adequate supply should be available for distribution before the seasonal advent of poliomyelitis in different regions of the United States. How much of this will get in the hands of private physicians is variable, depending upon decisions of state and local health authorities and their advisory committees.

If the anticipated supply becomes available, it should be about enough to provide a high degree of protection against paralytic poliomyelitis before the 1956 polio season to all children in the most

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1. Pomeranze, J. et al.: Angiology, June, 1955.
2. Freedman, L.: Angiology 6:52, Feb. 1955.

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SALK POLIO VACCINE

(Continued from Page 490)

susceptible age groups (six months through fourteen years) and pregnant women who request it. In round numbers, there are approximately 50 million individuals in these categories. At least 10 million and probably 15 million children have already received one or more injections of Salk vaccine. This leaves about 35 million children and some to be vaccinated on an emergency basis before the 1956 polio season.

Granting rapid and equitable distribution and no unanticipated delays in processing and releasing vaccine (which requires a minimum of 120 days), there should be just about enough vaccine to give at least one and usually *two injections* each to 35 million people. Administration of this vast amount of vaccine presents a task of heroic proportions.

The *ideal* dosage schedule currently recommended is: two 1 cc. injections, spaced two to six weeks apart, with a third 1 cc. ("booster") injection given not earlier than seven months later. Ideally, the first two injections should be given immediately after the previous polio season, in the late fall, with the booster injection being administered just before the subsequent polio season. It is easy to see that this is a schedule impossible to follow under the emergency conditions of 1956.

In the future, vaccination against paralytic poliomyelitis, undoubtedly, will become a standard pediatric procedure, with a schedule of injections beginning at six to nine months of age. But we must face the current situation realistically. The effectiveness of the vaccine depends upon the mass of antigen administered and the number and spacing of inoculations.

A compilation of reports from thirty state health officers, evaluating results of the 1955 vaccine program, showed about 79 per cent effectiveness even though three inoculations, as recommended, had *not* been given. This compilation compares experience among 5.2 million unvaccinated children and 4.8 million children who received one or more doses, *but mostly one dose,* of vaccine. Even under the epidemic conditions that prevailed in Massachusetts in 1955, a high rate of protection (60 per cent) against paralytic poliomyelitis was reported from just one dose of the vaccine used in that state.

Other research, still in progress, has revealed this fact—the first injection of vaccine of the potency that prevailed in 1955 did not "take" in about 20 per cent of the children inoculated. However, a substantial percentage of those who fail to acquire antibody on the first injection attain antibody, and a primary sensitization, with a subsequent injection.

POLIO VACCINE ALLOCATED FOR MICHIGAN

Albert E. Heustis, M.D., State Health Commissioner, reports that as of Wednesday, April 18, Michigan had been allocated 1,368,399 doses of polio vaccine for purchase. Together with vaccine supplied earlier by the National Foundation for Infantile Paralysis, this makes a grand total of 2,022,963 doses of vaccine so far for Michigan, most of it already used. This would be approximately the amount needed to give three doses to one-third of the vaccine priority group, which remains children from one through fourteen years of age and pregnant women. The department recommends continued emphasis on the five through nine-year-olds. Because of the shortage of vaccine, the rule governing its distribution was changed on April 12. Under the new rule, vaccine is available only for first and second doses.

AMES AWARD CONTEST

The American College of Gastroenterology, in co-operation with the Ames Company of Elkhart, Indiana, announces the 1956 Ames Award Contest for the best papers in Gastroenterology as follows:

There will be two classes of awards:

1. *Fellows in Gastroenterology, Residents, First or Second-Year Interns*

First Prize—$500.00, a certificate of merit and a one-year subscription to *The American Journal of Gastroenterology,* official publication of the American College of Gastroenterology.

Second Prize—$250.00, a certificate of merit and a one-year subscription to *The American Journal of Gastroenterology.*

2. *Best Paper Published*

For the best paper published in *The American Journal of Gastroenterology,* during the twelve months ending June 30, 1956, for which no prize has been previously awarded, $250.00.

Rules and Regulations

All papers submitted must represent original work in Gastroenterology, must not have been previously published except for abstracts or short preliminary reports and must not have been previously presented at any national meetings.

The contents of the papers can be clinical or basic science. Clinical papers must not be case records, but controlled clinical work.

The length of a paper is no criterion for originality or value.

All entries for the 1956 prizes, with the exception of those already published in *The American Journal of Gastroenterology,* must be typewritten in English, double-spaced on one side of the paper and submitted in six copies.

The winning entries will be selected by the Research Committee of the American College of Gas-

(Continued on page 500)

Introducing

A.P.C. WITH Demerol®

Tablets

for more efficient

CONTROL OF *Pain*

Each tablet contains:

Aspirin	200 mg.	(3 grains)
Phenacetin	150 mg.	(2½ grains)
Caffeine	30 mg.	(½ grain)
Demerol hydrochloride	30 mg.	(½ grain)

Average Adult Dose: 1 or 2 tablets
repeated in three or four hours as needed.

Bottles of 100 tablets. *Narcotic blank required.*

"Such a combination has proven clinically to be far more effective and no more toxic than equivalent doses of any of these used singly."*

Winthrop LABORATORIES
NEW YORK 18, N. Y.

*Bonica, J.J.; and Backup, P.H.: Northwest Med., 54:22, Jan. 1955.

Demerol, trademark reg. U.S. Pat. Off., brand of meperidine. – May be habit forming

All the be

Multiple Compressed Tablets 'Co-Deltra' and 'Co-Hydeltra' are unique among the dosage forms of the newer steroids, because they are specifically designed as a tablet within a tablet to provide stability and to release in sequence, antacid and anti-inflammatory agents . . .

1. the outer layer of antacids (aluminum hydroxide gel and magnesium trisilicate) comes into contact with the gastric mucosa first . . . and after it is completely dissolved . . .

2. *the hitherto intact inner core* containing the anti-inflammatory agent (either prednisone or prednisolone) then begins to release its full therapeutic potential . . . and not before.

NEW

Multiple Compressed Tablets

'Co-Deltra'

Prednisone Buffered

benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress...

A reportedly higher incidence of gastric distress in patients receiving the newer steroids prednisone and prednisolone indicates the desirability of co-administering non-systemic antacids.[1]

To help the physician cope with this problem of gastric distress which might otherwise become an obstacle to therapy with the newer steroids . . . Multiple Compressed Tablets 'Co-Deltra' (Prednisone Buffered) and 'Co-Hydeltra' (Prednisolone Buffered) are now available.

'Co-Deltra' and 'Co-Hydeltra' are now available in bottles of 30 on your prescription. Each Multiple Compressed Tablet contains:

Prednisone or Prednisolone, 5 mg.; 300 mg. of dried aluminum hydroxide gel, U.S.P., and 50 mg. of magnesium trisilicate.

'Co-Deltra' and 'Co-Hydeltra' are trade-marks of Merck & Co., Inc.

1. Bollet, A. J., Black, R., and Bunim, J. J.: *J.A.M.A.* **158**: 459, June 11, 1955.

'Co-Hydeltra'

Prednisolone Buffered

SHARP & DOHME

Philadelphia 1, Pa.
Division of Merck & Co., Inc.

AMES AWARD CONTEST

(Continued from Page 496)

troenterology and the awards will be made at the annual convention banquet of the College, to be held in New York in October, 1956.

All papers selected for awards become the property of the American College of Gastroenterology and the decision of the judges will be final. Should none of these papers submitted meet the standards set by the Committee, the Committee reserves the right to withhold the making of any award.

The recipient of the first prize will present the paper in person at the annual meeting of the College.

All unpublished entries must be received no later than July 15, 1956, and should be addressed to the Research Committee, American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

GOVERNOR'S COMMITTEE TO STUDY OPERATION OF MICHIGAN BLUE CROSS

George E. Bowles, Plymouth, Chairman of Labor Mediation Board.

Mrs. Geraldine Bledsoe, Detroit.

George Broadbent, Director of Farmers Union Insurance Section.

R. C. Buerki, Director of Ford Hospital, Detroit; Vice President, Michigan Hospital Service.

Robert Conder, Vice President, Chrysler Corporation, in charge of Industrial Relations.

Almond Cressman, Michigan State Grange.

Edward L. Cushman, Vice President, American Motors Corporation.

Mrs. Marjorie Gardner, East Lansing, Michigan Farm Bureau.

Dr. Ralph F. Lindberg, Detroit Osteopathic Hospital.

Mrs. Dorothy McAllister, Grand Rapids.

Mrs. Mary Kelly Mullane, Director of Nursing, Cunningham Drug Company, Detroit.

Frank Noakes, Detroit, Secretary-Treasurer, Brotherhood of Maintenance of Ways Employes.

Max Osnos, President, Sam's Inc., Detroit.

E. C. Swanson, Secretary, State Board of Registration in Medicine.

Professor Herbert F. Taggard, University of Michigan.

Leonard Woodcock, Vice President, UAW.

Morton Zimmerman, Unemployment Security Commissioner.

RESOLUTIONS ADOPTED BY MSMS HOUSE OF DELEGATES

September 26-27, 1955

1. RESOLUTION RE BEAUMONT MEMORIAL PRESERVATION

WHEREAS, in Senate Concurrent Resolution No. 34, adopted by both Houses of the Legislature on March 17, 1955, the Michigan Legislature expressed its interest in the Beaumont Memorial on Mackinac Island and recognized the contribution of numerous members of the Michigan State Medical Society in restoring this historic site; and

WHEREAS, the medical doctors of the Michigan State Medical Society sincerely appreciate this compliment, and share with the Legislature and citizens of Michigan a great pride in Mackinac Island State Park as one of our nation's most historic spots, and

WHEREAS, the Mackinac Island State Park is a tourist mecca that, with proper encouragement, will become increasingly popular as an historic area of interest and inspiration to all who visit it, and

WHEREAS, the Michigan State Medical Society, in organizing a campaign for private voluntary contributions from its members to finance restoration of the building which is now Beaumont Memorial, has initiated an idea which could greatly benefit the future historic development of the Mackinac Island State Park by the utilization of funds from sources other than the appropriation of public moneys, and

WHEREAS, the members of the Michigan State Medical Society maintain a continuing interest in the Beaumont Memorial as their own project in the total development of the Mackinac Island State Park, this being evidenced by the further provision of interior furnishings and special historical exhibits for the Beaumont Memorial after its conveyance to the people of Michigan in dedication ceremonies on July 17, 1954; therefore be it

RESOLVED: That the House of Delegates of the Michigan State Medical Society express its deep appreciation to the Michigan Legislature for its complimentary action in adopting Senate Concurrent Resolution No. 34; and be it further

RESOLVED: That in the interest of preservation of the Beaumont Memorial and its future expansion as an historic shrine, the Michigan State Medical Society respectfully urges the Michigan Legislature to (a) continue its interest in the Beaumont Memorial, and (b) in order to better meet this purpose, to authorize an Advisory Committee of the Michigan State Medical Society to confer each year (or more often, as necessary) with the Mackinac Island State Park Commission as an advisory group on the maintenance and improvement of the Beaumont Memorial; and be it further

RESOLVED: That the Michigan State Medical Society respectfully and urgently suggests that the Michigan Legislature at its earliest convenience study and put into action a program which would encourage other professional groups, trade associations, and civic and historical organizations to adopt projects supported by voluntary financial contributions for restoring and renovating the many other historical sites in the Mackinac Island State Park as a reminder of the remarkable part Michigan has played in many fields of American scientific, cultural and political progress.

2. RESOLUTION RE PROPAGANDA ON SALK POLIO VACCINE

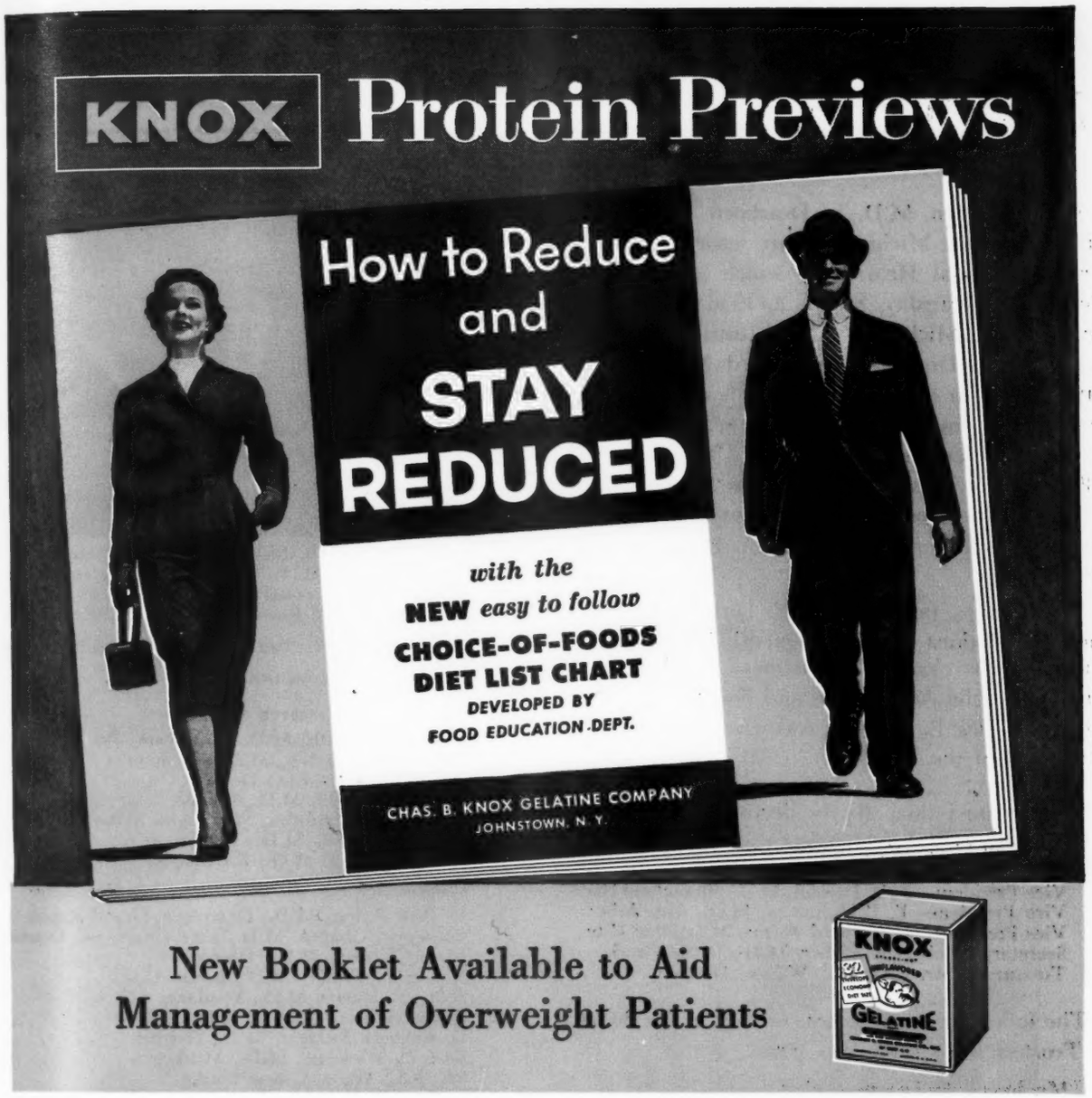
WHEREAS, the medical profession has accumulated a tremendous amount of practical experience in the proper methods of initiating new programs for the protection of the health of the people, and

WHEREAS, this experience includes the administration of many different vaccines for the prevention of virus and other diseases, and

WHEREAS, members of the medical profession must, in the public mind, inevitably share responsibility for any confusion or tragic consequences of the improper introduction of new procedures, and

WHEREAS, the medical profession has, in the public interest, repeatedly demonstrated its desire to cooperate with its own members and with others in the implementation of such health procedures, when given time to properly review and evaluate them; now, therefore be it

(Continued on Page 514)


KNOX Protein Previews
How to Reduce and STAY REDUCED
with the NEW easy to follow CHOICE-OF-FOODS DIET LIST CHART
DEVELOPED BY FOOD EDUCATION DEPT.
CHAS. B. KNOX GELATINE COMPANY
JOHNSTOWN, N. Y.
New Booklet Available to Aid Management of Overweight Patients
KNOX
GELATINE

The 1955 edition of the well-known Knox "Eat-and-Reduce" booklet eliminates calorie counting for your obese patients. This year's edition is based on the use of Food Exchange Lists[1] which have proved so accurate in the dietary management of diabetics. These lists have been adapted to the dietary needs of patients who must lose weight.

The first 18 pages of the new booklet present in simple terms key information on the use of Food Exchanges (referred to in the book as Choices). In the center, double gatefold pages outline color-coded diets of 1200, 1600, and 1800 calories based on the Food Exchanges. Physicians will find these diets easy to revise to meet the special needs of individual patients.

To help patients persevere in their reducing plans, the last 14 pages of the new Knox booklet are devoted to more than six dozen *tested*, low-calorie recipes. Please use the coupon below to obtain copies of the new "Eat-and-Reduce" booklet for your practice.

1. Developed by the U. S. Public Health Service assisted by committees of The American Diabetes Assn., Inc. and The American Dietetic Assn.

Chas. B. Knox Co., Inc.
Professional Service Dept. SJ-17
Johnstown, N. Y.

Please send me.....copies of the new illustrated Knox "Eat-and-Reduce" booklet based on Food Exchanges.

Heart Beats

ELECTIONS AND APPOINTMENTS

Earle A. Irvin, M.D., of Dearborn, was elected President of the Michigan Heart Association at its Seventh Annual Heart Day which was held in Detroit on Thursday, March 8, 1956 in conjunction with the Michigan Clinical Institute. Dr. Irvin, Medical Director of the Ford Motor Company, has been active in the Michigan Heart Association during the last several years, and has served as a member of the Board of Trustees since 1953. Dr. Irvin also serves on the Board of Directors of the American Heart Association and is National Chairman of the AHA Rehabilitation Committee.

Mr. George Jacoby, Detroit, Director of Personnel Relations of the General Motors Corporation, was elected Chairman of the Board of Trustees of the Association, and Secretary of Defense, Charles E. Wilson, was elected Honorary Chairman of the Board.

Other Association officers elected are:

President-Elect—M. S. Chambers, M.D., Flint
Vice President—Mr. Frank N. Isbey, Detroit
Vice President—F. D. Dodrill, M.D., Bloomfield Hills
Vice President—F. D. Johnston, M.D., Ann Arbor
Vice President—L. Fernald Foster, M.D., Bay City
Secretary—Robert E. Fisher, M.D., Battle Creek
Treasurer—Mr. Alfred T. Wilson, Detroit

The following persons were elected to the Board of Trustees for a three-year term:

Mr. Joseph A. Anderson, Flint
Paul S. Barker, M.D., Ann Arbor
M. S. Chambers, M.D., Flint
Sidney E. Chapin, M.D., Dearborn
Warren B. Cooksey, M.D., Detroit
Mr. George Dean, Lansing
Robert E. Fisher, M.D., Battle Creek
E. A. Irvin, M.D., Dearborn
Mr. Frank N. Isbey, Detroit
Ben I. Johnstone, M.D., Detroit
Mr. Alfred T. Wilson, Detroit
Mr. Paul F. Witte, Grosse Pointe
E. W. Young, M.D., Kalamazoo

Members of the Board of Trustees elected to serve on the Executive Committee are:

E. A. Irvin, M.D., Dearborn
M. S. Chambers, M.D., Flint
Sidney E. Chapin, M.D., Dearborn
Mr. J. William Hagerty, Detroit
Mr. Frank N. Isbey, Detroit
Mr. George Jacoby, Detroit
L. Paul Ralph, M.D., Grand Rapids
Donald Smith, M.D., Pontiac
Frank Van Schoick, M.D., Jackson
Mr. Alfred T. Wilson, Detroit

L. Paul Ralph, M.D. *(left)*, Immediate Past President, and M. S. Chambers, M.D. *(center)*, President-Elect, congratulate E. A. Irvin, M.D., who was elected President March 8, 1956.

Following his election, Dr. Irvin made the following Committee appointments:

Research Committee

Donald S. Smith, M.D., *Chairman,* Pontiac
Bert M. Bullington, M.D., Saginaw
Muir Clapper, M.D., Detroit
Douglas Donald, M.D., Detroit
Franklin D. Johnston, M.D., Ann Arbor
John W. Keyes, M.D., Detroit
John D. Littig, M.D., Kalamazoo

Community Service and Education Committee

L. Paul Ralph, M.D., *Chairman,* Grand Rapids
Sidney E. Chapin, M.D., *Vice Chairman,* Dearborn
Muir Clapper, M.D., Detroit
Robert E. Fisher, M.D., Battle Creek
Scott T. Harris, M.D., Ypsilanti
Katheryn L. O'Connor, M.D., Detroit
D. Emerick Szilagyi, M.D., Detroit
Silas C. Wiersma, M.D., Muskegon
Mr. Paul Witte, Grosse Pointe

Finance Committee

Mr. Frank N. Isbey, *Chairman,* Detroit
Mr. J. William Hagerty, *Vice Chairman,* Detroit
M. S. Chambers, M.D., Flint
Mr. Cyrus King, Detroit
L. Paul Ralph, M.D., Grand Rapids
Donald S. Smith, M.D., Pontiac
Mr. Alfred T. Wilson, Detroit

By-Laws Committee

F. Janney Smith, M.D., *Chairman,* Detroit
Mr. Stanley Beattie, Detroit
Warren B. Cooksey, M.D., Detroit
Mr. George Jacoby, Detroit

Heart Day Committee

L. Paul Ralph, M.D., *Chairman,* Grand Rapids
Sidney E. Chapin, M.D., Dearborn
Muir Clapper, M.D., Detroit
Katheryn O'Connor, M.D., Detroit
Mr. Paul Witte, Grosse Pointe

Nominating Committee

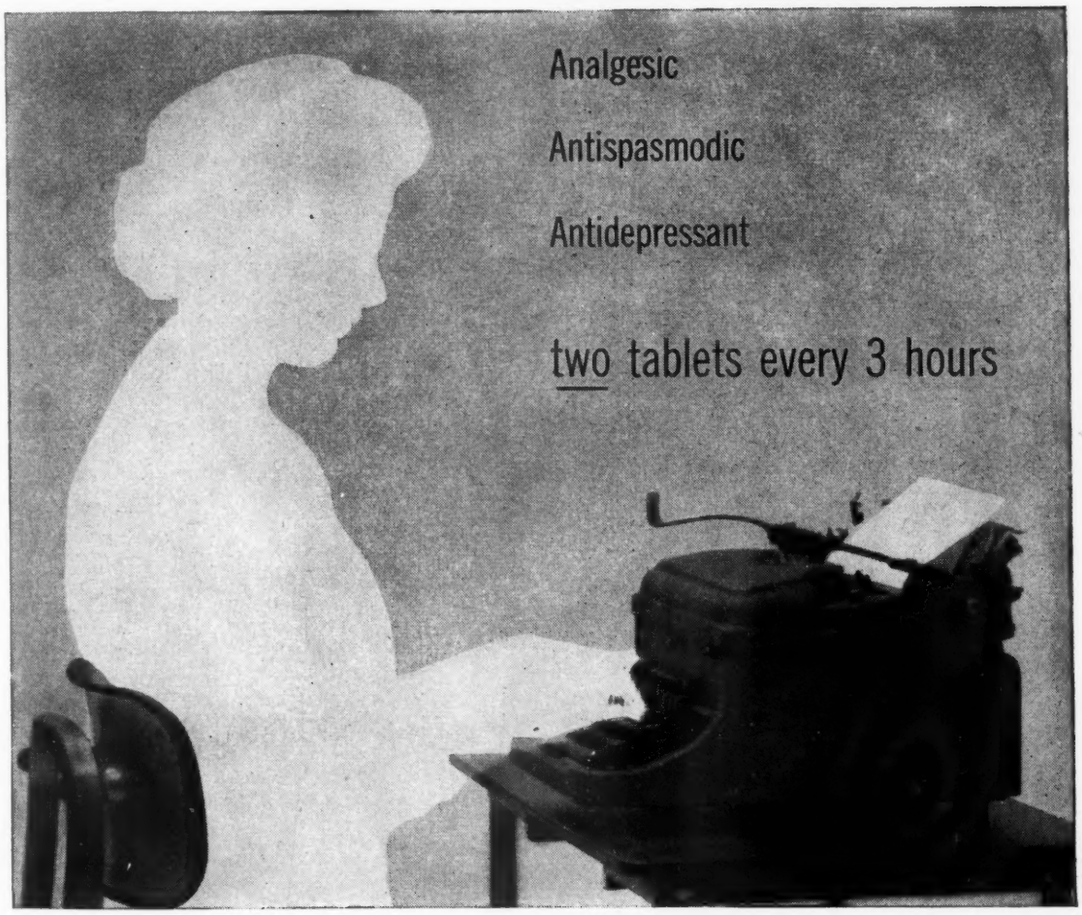
M. S. Chambers, M.D., *Chairman,* Flint
Sidney E. Chapin, M.D., Dearborn
Mr. J. William Hagerty, Detroit
L. Paul Ralph, M.D., Grand Rapids

"140 million working hours are lost annually as a result of

dysmenorrhea"[1]

Before menstruation begins, for sure relief of
dysmenorrhea prescribe

Edrisal*



FORMULA: Each 'Edrisal' tablet contains:

Benzedrine* Sulfate (racemic amphetamine sulfate, S.K.F.)	2.5 mg.
Aspirin	2.5 gr.
Phenacetin	2.5 gr.

Smith, Kline & French Laboratories, Philadelphia

1. M. Times 76:416 *T.M. Reg. U.S. Pat. Off.

Doctors' Own Foundation in Twelfth Year of Progress

In eleven years of life, the Michigan Foundation for Medical and Health Education, Inc., has steadily increased its program and achieved some of its goals. Progress has been encouraging, but there is still much that could—and should—be done if the Foundation is to fulfill its mission in the future.

That, in general, is the view of Earl I. Carr, M.D., President of the Foundation, and the men around him who have directed progress of the organization.

The Michigan Foundation for Medical and Health Education was incorporated in 1945 "to acquire, provide, use, develop, endow, and finance methods, means and facilities for postgraduate education in medicine, for education in medicine, for lay health education, and for research, fellowships, and scholarships."

In the field of lay education, the Foundation has served as financial sponsor for the Annual Michigan Rural Health Conference, which is now established as one of the most worthwhile health education activities in our state. In postgraduate medical education, the Foundation has sponsored the appearance of a top-level lecturer at each recent MSMS Annual Session and Michigan Clinical Institute. At the 1956 Clinical Institute, for example, Alton Ochsner, M.D., of New Orleans, presented the Michigan Foundation for Medical and Health Education Lecture (see page 580, in this issue).

In the field of general medical education, the Foundation has loaned some $12,000 from its revolving student loan fund to promising upperclassmen who needed a financial boost in order to complete their schooling in either of Michigan's two medical schools.

It is through this student loan fund that the Foundation can perform its greatest service today. With the disappearance of "GI benefits" and the continuation of high living costs, more and more medical students feel the need for educational loans to complete their work in medicine. Borrowers are pledged to practice in Michigan.

Generous contributions by the Ingham County Medical Society and the Woman's Auxiliary to the Wayne County Medical Society have increased the loan fund within the past year, along with a number of personal contributions. However, additional individual contributions are needed to keep the student loan fund active. All contributions are deductible for income tax purposes.

Any lump sum gifts are welcomed. Of equal, or greater, importance are (1) pledges which give the donor an opportunity to spread a modest annual amount over a period of several years, or (2) the so-called "LeFevre Plan" where the individual contributes $10 or more to the Foundation annually on his birthday.

Your contribution will aid the increase of medical knowledge in Michigan and help widen medical service in our state. A Foundation pledge card is reproduced with this article as a reminder to YOU. Your contribution will be put to work at once!

Name.....

Office Address.....City.....

Residence Address.....City.....

I hereby pledge to the

MICHIGAN FOUNDATION FOR MEDICAL AND HEALTH EDUCATION, INC.

606 Townsend Street, Lansing, Michigan, for the twelve-month period beginning....., the sum of

TOTAL PLEDGE	PAID HEREWITH	BALANCE DUE
$	$	$

My contribution is
Please Check Your Choice [√]

(1) In Cash ☐
or (2) In War of Victory Bonds ☐
or (3) In Life Insurance ☐
or (4) As a Memorial ☐
or (5) In My Will ☐

to be paid in the total sum ☐
or in annual payments of $.....
to be paid in the total sum ☐
or in annual payments of $.....
to the memory of:
.....

SIGNATURE.....

Reduces Muscular Tension

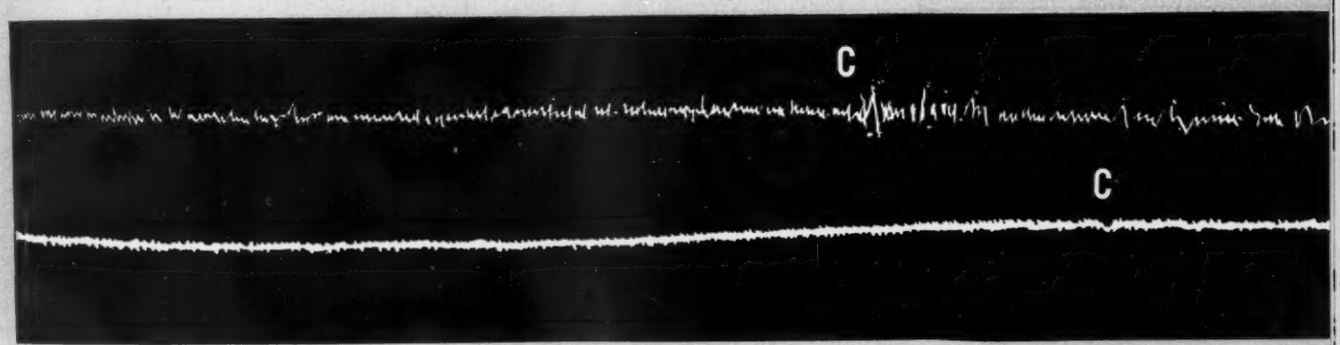
Equanil*

MEPROBAMATE

(2-methyl-2-*n*-propyl-1,3-propanediol dicarbamate)

Licensed under U.S. Patent No. 2,724,728

Electromyography shows decisive response



Electromyographic study of neuromuscular hyperactivity in 42-year-old male with anxiety-tension syndrome. A, Before EQUANIL; action potential of high amplitude and frequency. B, After one week of ambulatory treatment with EQUANIL; showing definite reduction in tension, greater ability to relax, and marked improvement in muscular coordination. C, Point where patient makes effort to relax.[1]

The remarkable effectiveness of EQUANIL may be demonstrated in two ways. One is by its ability to relieve muscle spasm and neuromuscular tension.[1] The second is by its ability to relieve mental tension and anxiety.

Usual dosage: 1 tablet t.i.d. The dose may be adjusted either up or down, according to the clinical response of the patient.

Supplied: Tablets, 400 mg., bottles of 50.

1. Dickel, H.A., et al.: West. J. Surg., April, 1956.

anti-anxiety factor with muscle-relaxing action ... relieves tension

Wyeth®

Philadelphia 1, Pa.

*Trademark

Michigan Licentiates in Medicine

The Michigan State Board of Registration in Medicine announces the following licenses issued by examination or certification from May 9, 1955, and including January 25, 1956, beginning with number 21121 and ending with number 21584.

Austin, Shirley .....Univ. of Penn. '47
Cook, John Lee .....U. of Michigan '53
Himel, Sanford Zygmunt .....Univ. of Basel '39
Carlson, Ralph Gilbert .....Univ. of Illinois '53
Noe, Joseph Thomas .....Univ. of Louisville '37
Jordan, Alexander Dillon ....Hahnemann Med. Col. '33
Hettle, Paul M. .....Ind. Univ. '51
Ditzler, John Wm. .....Temple Univ. '44
Petersen, Geo. John .....Univ. of Wis. '52
Brooks, Roosevelt .....Univ. of Ill. '29
Haanes, Mary Lou Turner .....Univ. of Penn. '48
Tkachuk, Demytro .....Univ. of Poznan '30
Pollens, Louis Samuel .....Ohio St. Univ. '53
Feller, Irving .....U. of Michigan '53
Ladd, James Evans .....Temple Univ. '51
Jordan, Robt. Henry .....Univ. of Virginia '53
Schmidt, Harry J. .....Univ. of Mich. '48
Kalichman, Nathan .....McGill Med. Coll. '44
Richard, Robert Earl .....Med. College of Virginia '48
Haberstroh, Colleen Ellen .....Univ. of Iowa '51
Basinger, Clair Eugene .....Univ. of Chicago '46
Hutto, Wm. Harry .....Indiana Univ. '37
Hickner, Lawrence P. .....Creighton Univ. '47
Jankoska, Richard Lyle .....Louisiana St. Univ. '50
Mitcham, Leroy .....Meharry Med. College '52
Valantiejus, John A. .....Stritch Med. School '51
Jenkins, Sidney Bernard .....Howard Med. School '51
Murray, Raymond Harold ....Harvard Med. School, '48
Geneczko, John Theodore .....Jefferson Med. Coll. '51
Olson, Robt. Charles .....Marquette Sch. of Med. '53
Valdmanis, Ferdinands .....Univ. of Latvia '42
Hollinger, Harry Howard .....U. of Michigan '54
Page, Merle Charles .....U. of Michigan, '51
Wersich, Wilbern Wm. ....Northwestern Sch. of Med. '51
Landry, Roy Anthony ....Louisiana State Med. Sch. '51
Harvey, John George Klemm .....U. of Penn. '45
Cole, Versa Viola .....U. of Chicago '38
Rogers, Charles S. .....U. of Penn. '47
Chen, Hsi-Sheng Yue
Women's Christian Medical College '35
Peake, Charles Orlando, III .....U. of Penn. '51
Barger, Andrew J. .....Jefferson Med. College '51
Albert, Donald George .....Temple University '51
Farnam, Larry M., Jr. .....Oklahoma Univ. '39
Daly, Miriam Shamer .....Univ. of Maryland '50
Daly, Harold Lawrence, Jr. ....Univ. of Maryland '50
Armstrong, Wayne Edward .....U. of Michigan '54
MacPhail, Albert Angus .....U. of Michigan '54
Webb, Walter Leo .....U. of Michigan '54
Nakfoor, Eugene Carl .....U. of Michigan '54
Zick, Gerald Adolph .....U. of Michigan '54
Davis, William Benedict .....U. of Michigan '54
Allaire, Francis John .....U. of Michigan '54
Anderson, Beverly Lytle .....Wayne Univ. '54
Appell, Lloyd Edward .....U. of Michigan '54
Audretsch, Frank E. .....Wayne Univ. '54
LeMieux, Leslie L., Jr. .....Western Reserve '54
Best, John Alden .....Hahneman Med. College '54
Dykewicz, Richard Alfred .....Wayne Univ. '54
Moeller, Jan Christen .....U. of Michigan '54
Thompson, Chas. Andrew .....U. of Michigan '54
Jarkowski, Thadeus Lloyd .....Wayne Univ. '54
Manahan, Raymond James .....Wayne Univ. '54
Montgomery, Wm. Chalmers .....Johns Hopkins '54
McPhee, Edward Charles .....Wayne Univ. '54
Lowry, Robt. Andrew .....U. of Michigan '54
Batsakis, John George .....U. of Michigan '54
Jackson, Donald Pearce .....U. of Michigan '54
Wenzler, Paul Jordan .....Indiana Med. School '54
Beljan, John Richard .....U. of Michigan '54
Boman, Robt. Henning .....Wayne Univ. '54
Court, Jack Louis .....U. of Michigan '54
Crawford, John Winfred .....U. of Michigan '54
DeVries, John Martin .....U. of Michigan '54
Myers, Thomas Warren .....U. of Michigan '54
Hepworth, Claud Ira .....U. of Michigan '54
Basel, Arthur Richard .....U. of Michigan '54
DeWitt, Donald Everett .....Wayne Univ. '54
Fish, James Bartlett .....U. of Michigan '54
Issett, Armand L., Jr. .....Wayne Univ. '54
Kemp, Wallace Rudolph .....U. of Michigan '54
Kutcipal, Richard Andrew .....U. of Michigan '54
Lowrie, James Harry .....Wayne Univ. '54
Licht, Robert .....U. of Michigan '54
Mason, Warren Burt .....U. of Michigan '54
McCabe, Brian Francis .....U. of Michigan '54
Miller, Theodore Phillip .....Wayne Univ. '54
Peltz, Morris Leo .....U. of Michigan '54
Poppy, James Henry .....U. of Michigan '54
Postman, Howard Fanual .....U. of Michigan '54
Reus, Wm. Fredrick .....U. of Michigan '54
Rosenbaum, Jean B. .....Wayne Univ. '54
Selving, Benjamin T. .....U. of Michigan '54
Sheldon, Edward Alvan .....U. of Michigan '54
Johnson, Frank Donald .....U. of Michigan '54
Sisson, James Chas. .....U. of Michigan '54
Spencer, Clyde J. .....U. of Michigan '54
Stewart, Bruce Hubbard .....U. of Michigan '54
Weston, Arthur Sherwin .....U. of Michigan '54
Kamsler, Milton A., Jr. .....U. of Penn. '47
Allis, Lyle M. .....U. of Michigan '54
Ausum, John David .....U. of Michigan '54
Balow, Ross Marvin .....Wayne Univ. '54
Benedict, James Stephen .....U. of Michigan '54
Bennett, William Bruce .....U. of Michigan '54
Berry, Ivor, Jr. .....U. of Michigan '54
Boerman, Walter John .....U. of Michigan '54
Bologna, James Joseph .....U. of Michigan '54
Borchak, Robt. Geo. .....Wayne Univ. '54
Eary, L. Edmond, Jr. .....U. of Michigan '54
Busteed, Wm. Savage .....U. of Michigan '54
Danz, Geo. William .....U. of Michigan '54
France, Lloyd Carol .....U. of Michigan '54
Finger, John Edward .....U. of Michigan '54
Heinemann, Herman Judd .....U. of Michigan '54
Heyner, Conrod Stanley .....U. of Michigan '54
Hicks, Wm. Kenneth .....U. of Michigan '54
Hunter, Harry Holmes .....U. of Michigan '54
Ragins, Abner I. .....Wayne Univ. '54
Rosenbaum, Louis II .....U. of Michigan '54
Bunto, William G. .....U. of Michigan '54
Tinkey, L. Leo .....State U. of Iowa '53
Jenkins, Henry Leonard .....Howard Univ. '54
Scott, Benjamin F. III .....Univ. of Ark. '45
Jones, Robert Collier .....U. of Michigan '54
Joseph, Robert Henry .....U. of Michigan '54
Kempers, Roger Dyke .....Wayne Univ. '54
Mau, Allen Kim Wo .....U. of Michigan '54
McAlindon, James Daniel .....Stritch Sch. of Med. '54
Nicholson, Hiram A. .....Wayne Univ. '54
Riddle, Chas. Baxter .....Wayne Univ. '54
Sargent, Chas. Alden .....U. of Michigan '54
Schoenhals, Chas. Erb .....Wayne Univ. '54
Simmons, Richmond Hogle .....U. of Michigan '54

(Continued on Page 508)

in rheumatoid arthritis

continuing benefits

for successful corticosteroid therapy

METICORTELONE*

(PREDNISOLONE)

- therapy usually undisturbed by sodium **retention,** edema, weight gain
- excellent relief of arthritic pain, swelling, tenderness
- spares patients salt-poor diets
- up to 5 times as potent as hydrocortisone

Available as 1, 2.5, and 5 mg. tablets; 2.5 and 5 mg. **capsules**

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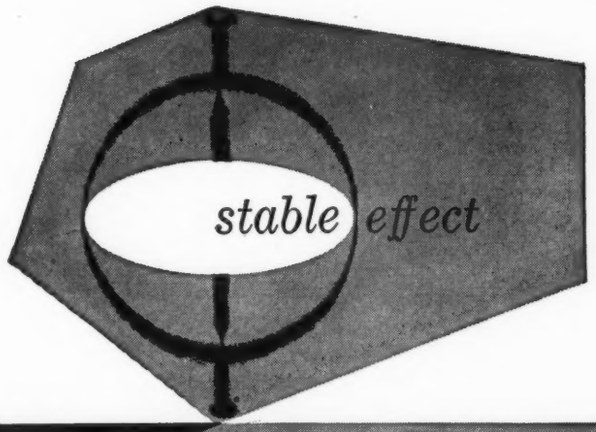

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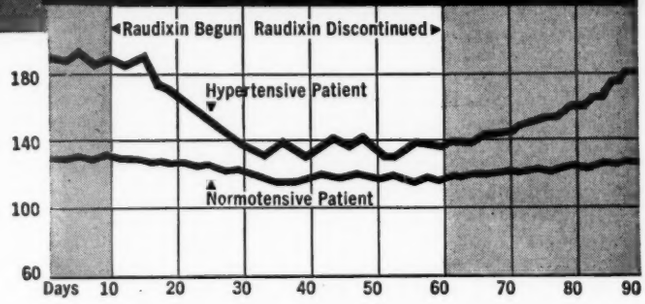

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Wright, Kenneth Charles .....Indiana Univ. '51
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National Med. Coll. of Shanghi '47
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Akamine, Frank Sadakichi.....Coll. of Evangelists '54
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1. Spies, T. D., et al.: GP 12:73, No. 1, 1955. 2. Boland, E. W.: J.A.M.A. 160:613, 1956. 3. Gillhespy, R. O. Lancet 2:1393, 1955.

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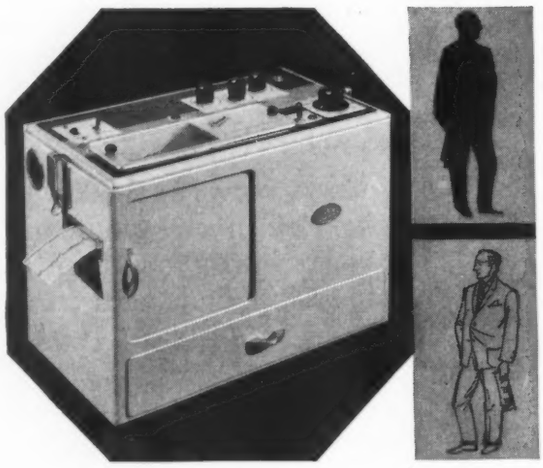

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Rusch, Kenneth Henry .....U. of Illinois '48
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Schmidt, Donald LeRoy .....Northwestern U. '54
Dakin, Wirt B. .....U. of Southern Calif. '08
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Editorial Opinion

THE DISLOYAL MINORITIES

When a few doctors obstruct a plan to provide medical care insurance for civil employes of our state, and for Federal employes resident in New York State, . . . after a conclusive majority of the doctors of the state have endorsed the plan through their designated spokesmen . . . can this mean disloyalty?

Minorities serve a useful function . . . when they are ruled by selfish leaders they go wrong. It takes an aggressive minority to prod a stuffed-shirt complacent majority into needed progressive changes. When the votes are counted a loyal minority joins the majority to make the action unanimous.

Among all people . . . whether tradesmen, artisans or professionals . . . there are small numbers motivated solely by selfishness . . . which trait is usually masked . . . at least this is true among members of our medical profession. But, sooner or later, the ugly truth becomes obvious.

Among these dissident selfish characters are those who say "no one can tell me what I can charge for my services" or, "no one can fix my fees." Back of such slogan-shibboleths is carried on a masked banditry . . . the poor and the rich alike are the victims. While this sort of practice remains a solo performance, we can only "let the buyer beware."

For more than fifteen years a majority of doctors have agreed that something should be done about the rising costs of medical care. In New York, as in most other commonwealths, laws have been enacted to license "voluntary non-profit medical care insurance" plans. Through such agency it is possible for people having limited or moderate resources to pay for such medical care as may become necessary. The first experiences were developed "on a local level." The success of this plan of insurance is now assured . . . it has matured and no longer can it be called an experiment.

Today comes a new problem. In New York, each voluntary non-profit plan is limited to operations within eighteen counties.

The civil employes of the entire state are seeking the benefits of this new social plan for hospital and doctor-care insurance . . . with their dependents they count up to some 125,000 persons. There are other large groups.

The Federal employes . . . never too well paid . . . are also asking for this newer type of insurance to pay hospital and doctor-care bills. The number domiciled in New York State is estimated to be 200,000 . . . increased by their dependents to 500,000 persons.

There are other large groups . . . employes of concerns doing a multi-state business . . . railways and other carriers, mine workers and fuel suppliers, and many others. All these large groups want similar coverage regardless of the domicile locations.

The doctors of our State through the Blue Shield Plans of New York are willing to provide coverage for residents of our State who are employed in such groups . . . but . . . minorities of two areas . . . disloyal to the creed of our profession . . . refuse to abide by the terms of contracts which assure paid-in-full care for patients who are in the lower income levels . . . to terms of coverage accepted by physicians in all other parts of the State.

In one area this disloyalty goes to the point of organizing to take over the local Blue Shield . . . to repudiate the philosophy of the majority of our State. Can the damage they do be repaired?

A conflict within the profession will do for us what a divided profession did for doctors in many foreign lands. It gives the politicans opportunity to take-over and exploit doctor-care as a political bonus to their followers.

IS THIS WHAT DOCTORS OF THESE TWO AREAS WANT?—The Bulletin of the Medical Society of the County of Kings, February, 1956.

RESOLUTIONS

(Continued from Page 500)

RESOLVED: That this Society respectfully urge all legislative bodies, lay, private, and official public health agencies, to avail themselves of their opportunity to consult with the proper committees of this Medical Society and other medical societies concerned, before new health procedures are introduced; and that these private and public health agencies provide such medical societies with all scientific data available in time for its careful evaluation before programs are started; and that such legislative bodies, lay, private, and official public health agencies recognize the rich experience of this and other medical societies when their advice is given for the planning of new health programs.

3. RESOLUTION RE POLLUTION OF INLAND WATERWAYS

WHEREAS, the State Department of Conservation has improved recreational facilities by purchase of waterfront land and has opened inland waterways and lakes, making these waterways accessible to our citizens, including owners of large boats, and

WHEREAS, pollution and desecration of Michigan inland waterways and lakes may therefore occur by unsanitary disposal of human and other wastes; therefore be it

RESOLVED: That the Michigan State Medical Society urge the Department of Conservation to investigate this situation and take proper steps to eliminate any problem which may be disclosed.

PR REPORT

RECENT EVENTS emphasize the need for better public understanding of the Blue Shield Plan, its relationship to Blue Cross, and the relationship of the medical profession to each of these non-profit plans. Within the space of a few weeks a number of letters and articles appearing in Michigan newspapers indicated that the misunderstanding was much more acute than had been generally recognized, even though MSMS has been concerned with the problem almost from the inception of Blue Shield.

Other indications were found in the discussions leading up to the establishment of the current Governor's Study Commission on Prepaid Hospital Care Plans and, in fact, in the hearings before that Commission once its investigation began.

Since so much of the misunderstanding seemed directly concerned with the medical profession and the role of the individual doctor of medicine in prepaid medical and surgical service, rather than in the principle of prepayment for low-income groups, MSMS elected to take positive action in behalf of its members. After study, the Executive Committee of The Council determined that display advertisements in selected daily newspapers provided the best medium for reaching the greatest number of people.

An ad was drawn up with Executive Committee approval, and scheduled for Sunday newspapers April 22. The headline: "What is the difference between Blue Shield and Blue Cross?" Other advertisements may follow at intervals, explaining other facets of the M.D.'s part in Blue Shield service, as part of an intensified educational program to broaden understanding.

Use of newspaper advertising to correct misunderstandings which were being compounded by repetition was a decisive new step in MSMS public relations policy. MSMS acted quickly, but not hastily, in taking the step.

MEDICAL EDUCATION WEEK, the first such nationwide observance, tied in well with the MSMS PR program and was bound to attract wide attention in Michigan with strong promotion. Although the full-scale review of the week's success will have to appear in a later JOURNAL, MSMS and several county medical societies (notably Wayne and Saginaw, from the preliminary reports) sponsored or co-operated in a number of activities calling attention to the progress and importance of medical education in Michigan. A proclamation by the Governor, at the suggestion of MSMS, several special television and radio shows, a series of statewide news releases, a number of service club talks, and an open house at Wayne University Medical School were among the major items in Michigan participation.

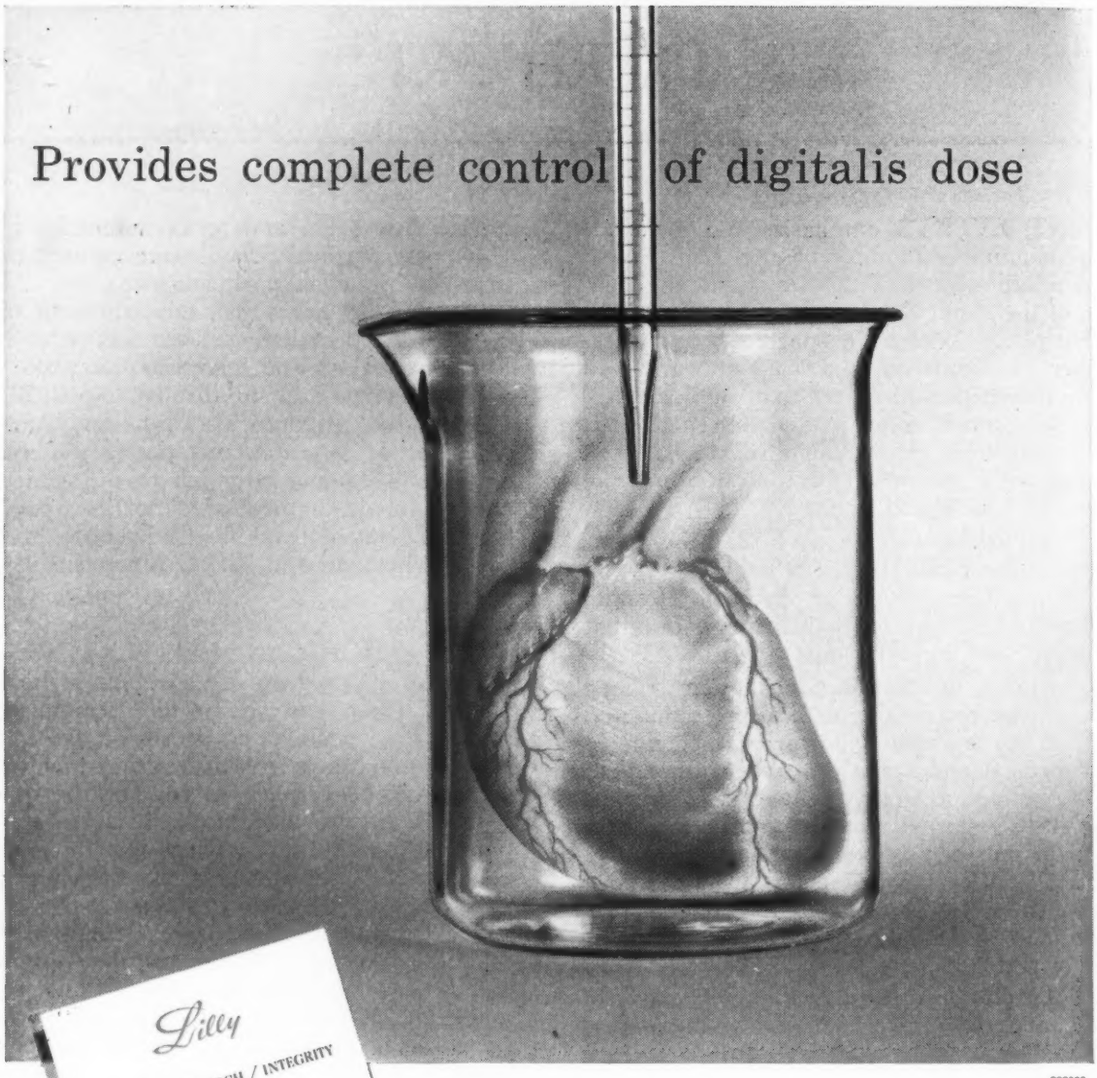
The MSMS newspaper advertisement on April 22, mentioned earlier, called attention to Medical Education Week and served as a keynote for the event which continued through April 28.

When the nationwide impact is tabulated, Michigan is certain to be among the leaders in effectively drawing attention to the achievements and problems in medical education, particularly to those related to the medical schools at University of Michigan and Wayne University.

THE MICHIGAN LEGISLATURE merits praise for its progressive viewpoint in health and medical affairs throughout the 1956 session. Although final decision on details of two important issues hang fire as this is written, many positive steps have been taken to protect the quality of medical care provided Michigan people. In addition, the groundwork has been laid for even greater progress in the future if the Legislature maintains the attitude evidenced this year.

This being an important election year, now is the time for every MSMS member—as an individual—to review the record of his own representatives in the State Legislature in health and medical matters. Legislators are sincere in their desire to serve the people they represent, so a word of encouragement supporting his efforts to return to Lansing is very much in order if you feel the members of the Legislature from your district have done a creditable job. The best time to become acquainted with candidates from your district, and to share your views with them, is before Election Day.

PR BRIEFS: The Woman's Auxiliary to the Ingham County Medical Society again performed a fine service for the whole Michigan medical profession with a well-planned reception honoring the wives of legislators and state officials mid-way through the 1956 legislative session. . . . MSMS Public Relations field secretaries will step up their contacts with county medical societies and are available to help out in local situations whenever needed, now that the Legislature has adjourned. . . . President William S. Jones, M.D., of Menominee, and his presentation on MSMS services are in great demand by county medical societies throughout the state. There still may be some open dates on his crowded schedule for a few societies that have not yet issued an invitation.



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The JOURNAL

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Chemotherapy of Rheumatic Fever

By Norman E. Clarke, M.D.,
Charles N. Clarke, M.D., and
Robert E. Mosher, Ph.D.

Detroit, Michigan

IT was almost eighty years ago when the salicylates were introduced for the treatment of rheumatic fever. Since that time numerous other types of compounds have been used for the treatment of this disease but without success. The recently discovered adrenocorticoids are the only other compounds known to suppress the manifestations of rheumatic fever. However, the therapeutic value of the salicylates in rheumatic fever has been found equal if not superior to that of cortisone and ACTH.

It was our purpose to find an anti-rheumatic drug that would have greater therapeutic potency and less toxicity than has salicyclic acid. The anti-rheumatic action of salicylic acid is established, so we have investigated compounds that are related to it chemically.

The chemical structure of salicylic acid is a six sided benzene ring with a (COOH) or carboxyl group and a single (OH) or hydroxyl group adjacent to it or in the ortho position. Salicylic acid has two isomers, one with the (OH) group in the 3 or meta position, and in the other it occupies the 4 or para position on the benzene ring. Of these three compounds only salicyclic acid will suppress the manifestations of rheumatic fever. It is notable that the (OH) or hydroxyl group occupies the ortho position in the active compound which makes it possible to form an additional or chelate ring. This is accomplished by the (OH) or hydroxyl group sharing its hydrogen ion with the ketone of the adjacent carboxyl group. It is the forming of a chelate ring that endows salicyclic acid with its unique ability to suppress the manifestations of rheumatic fever. However, when salicyclic acid is used in the dosage required to accomplish a therapeutic result, it is poorly tolerated. Its toxic reactions of tinnitus, sweating, gastrointestinal disorders, and particularly acidosis limit the usefulness of this drug.

An important metabolite of salicylic acid is the 2-5, Di-hydroxy benzoic or gentisic acid. This compound has the chemical structure of salicylic acid plus a second (OH) or hydroxyl group in the 5 or para position. This type of chemical structure permits the formation of a chelate ring and also a reversible quinone-hydroquinone system. We have treated with gentisic acid more than one hundred patients who had the monocylic, polycyclic, or persistently active form of rheumatic fever. When gentisic acid was administered in doses equal to those required for salicyclic acid, it excelled the salicylates in several respects. When the gentisates are administered in either the powdered or liquid form they cause no toxic reaction. The salicylates do not control the manifestations of the persistently active form of rheumatic fever, but this form is controlled by the gentisates. We have administered the drug for as long as three years without noting any loss of potency. The gentisates are therapeutically effective in a

Presented at the Fifth Annual Heart Day as part of the Michigan Clinical Conference on March 11, 1955. From the Department of Research, Providence Hospital, Detroit, Michigan. This work has been supported by grants from the Michigan Heart Association.

broader spectrum of this disease and likewise cause no toxicity. This decreased toxicity seems to follow the addition and position of the second (OH) or hydroxyl group on the benzene ring.

The fact that gentisic acid produced no toxic reactions when used in therapeutic doses, and had a broader therapeutic effectiveness in suppressing the manifestations of rheumatic fever, could be due to the addition of the reversible quinone-hydroquinone system to the otherwise chemical structure of salicylic acid. It appeared probable that unknown therapeutic effects would be accomplished by the different positions of the second or third hydroxyl group on the benzene ring when added to the primary structure of salicylic acid.

To evaluate the pharmacological significance attaching to the location of additional hydroxyl groups to the primary salicylic acid structure and especially of the quinone-hydroquinone system, we have examined various isomers of gentisic acid. Thirty patients who had rheumatic fever have been treated with beta resorcylic acid. This compound is an isomer of gentisic acid with the second (OH) or hydroxyl group added to the primary chemical structure of salicylic acid in the 4 position. This permits the formation of a chelate ring, but unlike gentisic acid, it cannot form a quinone-hydroquinone system. These patients received 1 to 2 gm. of beta resorcylic acid in divided doses daily for periods of two weeks to three months. We found that beta resorcylic acid suppressed the manifestations of rheumatic fever but less effectively than did gentisic acid, its analgesic and temperature reducing properties being greater than its influence on the manifestations of carditis. Diarrhea occurred in 20 per cent of the thirty patients treated with beta resorcylic acid. The addition of a second hydroxyl group in either the 4 or 5 positions of the primary chemical structure of salicylic acid greatly reduced their toxicity. The shifting of the hydroxyl group from the 5 to 4 position on the benzene ring produced the specific toxic reaction of diarrhea.

Another isomer of gentisic acid is 3-4, Di-hydroxy carboxylic or protocatechuic acid. This compound can form a quinone but not a chelate ring. It was administered to three patients who had rheumatic fever, and for periods of from seven to ten days. These patients received 1 gm. of the compound at three-hour intervals, or a total of 6 gm. in each twenty-four hours. Protocatechuic acid causes further elevation of the patients' temperature and heart rate and increased their rheumatic pains and general discomfort. There was an increase in the already elevated blood sedimentation rates and all patients became sleepy, physically and mentally less active, appeared depressed and complained of headache.

Another isomer of gentisic acid is gamma resorcylic acid. In this compound the (OH) or hydroxyl groups occupy the 2 and 6 positions on the benzene ring. The hydroxyl group in the ortho position in salicylic acid permits the formation of a chelate ring, so it was thought possible to enhance this action by having the second (OH) or hydroxyl group in the 6 position. Such a compound could form a double chelate ring. This compound has been given to six patients who had rheumatic fever. The compound was given in 0.2 gm. doses, and a total of 1 or 2 gm. was given in each twenty-four-hour period. They were treated for from one to six weeks. This compound suppressed the manifestations of rheumatic fever with much smaller doses than are required with the salicylates. The average dose required was about one-tenth of the usual therapeutic dose for the salicylates. The promptness of relief in these patients was remarkable, as within a few hours they would be relieved of their rheumatic pains or the painful symptoms of pericarditis.

The pharmacologic significance of an additional or third hydroxyl group and its location in the double chelate ring compound was determined by administering to twelve patients who had rheumatic fever the compound 2-4-6, Tri-hydroxy carboxylic or phloroglucinol carboxylic acid. This compound has the chemical structure of a double salicyclic acid like gamma resorcylic acid but with a third hydroxyl group in the 4 position on the benzene ring. The compound was administered in 0.3 gm. capsules, and 1 gm. to 6 gm. was given each day for periods of from seven days to three months. Most of our patients received 1 to 1.3 gm. of the compound in divided doses in each twenty-four-hour period and for from ten to twelve weeks. The manifestations of rheumatic fever were suppressed in two to three days, temperatures became normal in from six to ten days, and the blood sedimentation rates in most patients were normal within the fourth week of therapy, with some becoming normal within seven to fourteen days.

We were impressed by the prompt manner in which rheumatic fever manifestations were suppressed by phloroglucinol carboxylic acid therapy. There were no toxic reactions. With patients in whom this was started shortly after the onset of their disease, there seemed to be an unusual restoration of normal heart findings. It was our impression from this limited series of patients that phloroglucinol carboxylic acid might prevent permanent heart damage if it was used early in the disease. Phloroglucinol carboxylic acid has an anti-rheumatic potency that is eight to ten times greater than either salicylic or gentisic acids.

The unique ability of salicylic acid to suppress the manifestations of rheumatic fever has made its use in this disease paramount in spite of its undesirable side reactions. It required four weeks or longer for salicylic acid to suppress the manifestations of rheumatic fever, and its toxic reactions may be more distressing than the disease.

The discovery that gentistic acid was a metabolite of salicylic acid prompted its use in this disease. The gentisates suppress the manifestations of rheumatic fever in one to three weeks, and do so without producing any toxic reaction. However, their effective therapeutic dose is the same as for the salicylates. Gentisic acid has one distinct advantage in that unlike salicylic acid it is therapeutically effective in the chronic persistently active form of rheumatic fever.

The compound beta resorcylic acid is not as therapeutically effective as the gentisates. The fact that beta resorcylic acid is effective emphasizes the importance of the ortho position and also of the position of the second hydroxyl or (OH) group on the benzene ring. The position of the second hydroxyl group in beta resorcylic acid is such that a quinone-hydroquinone system cannot be formed as with gentisic acid. The quinone-hydroquinone system and the ortho position may be equally important or complement each other in suppressing the manifestations of rheumatic fever.

The importance of protocatechuic acid was its inability to form a chelate ring while being able to form a quinone-hydroquinone system. Protocatechuic acid is a catechol and related to adrenalin. We found this compound distinctly toxic and without influence on the manifestations of rheumatic fever.

The fact that gamma resorcylic acid can form a double chelate ring accounted for its ability to suppress the manifestations of rheumatic fever in but a few days, and to do so in doses that were about one tenth that required with salicylic acid. We observed a tendency for recurrence of rheumatic fever manifestations after seven to ten days of treatment with gamma resorcylic acid. This recurrence of symptoms never required the use of other forms of therapy and subsided with the continued use of the compound.

Of the compounds investigated by us so far, the most promising has been phloroglucinol carboxylic acid. This compound has the high potency of gamma resorcylic acid, the ability to suppress the manifestations of the disease in a few days, the important quality of being nontoxic and the possibility that, when used early in the disease, it may minimize heart damage.

We believe that we have been able to improve the treatment of rheumatic fever by discovering compounds that are low or lacking in toxicity but which contain a high degree of therapeutic effectiveness in doses that are much smaller than those required with salicylic acid. We have had reason to believe that a drug may be found that, when used early in the disease, will prevent or minimize heart damage. This is a preliminary report of work that is continuing toward the goal of improving antirheumatic therapy with a drug that is non-toxic, effective in small doses, and able to prevent heart damage.

FIFTY MILLION IN BLUE CROSS

More than 50,000,000 persons are now enrolled in the eighty-six Blue Cross plans in the United States, Canada and Puerto Rico, making it the largest voluntary organization in the nation, according to William S. McNary, executive vice president of Michigan Blue Cross. Blue Cross membership reached 50,179,264 in September, 1955. Although the Blue Cross principle of prepaid hospital care has existed only a little over twenty-five years, Blue Cross Plans now cover nearly one out of every three persons in the country. Michigan Blue Cross was established in March, 1939, and now covers half the population of the state. Its present enrollment exceeds 3,600,000. During 1955, Michigan Blue Cross paid hospitals for a record $88,000,000 worth of hospital care for 500,000 Blue Cross members who needed it.

Arterial Replacement with Nylon Prostheses

By Rudolph J. Castellani, M.D.,
Lyle F. Jacobson, M.D. and
Prescott Jordan, Jr., M.D.
Detroit, Michigan

DESPITE the vast amount of research in recent years, the ideal substitute for the aorta and major arteries has not been found. In the past arterial substitutes have ranged from so-called viable materials, including autogenous veins and homogenous arteries, to a multitude of non-viable materials, including metals, plastics, glass and various types of cloth.

The use of veins to replace segments of aorta is generally unsatisfactory because autogenous vessels of sufficient length and diameter are not available. Moreover, it has been demonstrated that a high percentage of such grafts undergo aneurysmal dilatation.[1] Aortic homografts, on the other hand, have been used successfully by a number of investigators.[2] Our use of irradiated homografts and freeze-dry methods of storage has been successful; however, the aggregate difficulties of acquisition, storage and sterilization have been discouraging. Although Szilagyi[3] has recently reported an improved method of sterilizing grafts using beta-proprio-lactone, in our own laboratories the chemical sterilization of homografts has been a tedious and unpredictable technique. In addition to the above problems, degenerative changes, notably calcification,[4,5] appear to be accelerated in homografts, a fact which we feel might well limit their usefulness.

Continued difficulties, therefore, have directed our most recent endeavors to the use of non-viable materials, for the criteria of the satisfactory prosthesis as noted below can be fulfilled by such a material. We feel that the ideal aortic substitute must be readily available, economical, easily stored, and readily sterilized. Moreover, it should be durable and non-reactive and should foster arteriogenesis by the patient.

As previously stated, many materials have been used. Although most of these have proved to be unsatisfactory, certain ones appear to show promise. Blakemore and co-workers,[6] in 1952, introduced grafts made of Vinyon-N cloth into the aortas of dogs and demonstrated continued patency in a high percentage of cases. By histologic study, they showed that these grafts became incorporated into a new fibrous tube with the ultimate development of an endothelial lining. Shumacker[7] has recently reported similar gross and histologic findings using nylon grafts and grafts constructed from nylon and polyethylene. Finally, similar results have been reported by Hufnagel,[8] using orlon.

During this period we have been conducting our own studies in this field. Keeping the above criteria in mind, we selected first nylon and then, for reasons apparent later, nylon and polyethylene for pilot studies.

Method

Fine mesh nylon containing a standard number of strands per square inch was used in all cases. Initially, tubes were made simply by folding a piece of nylon on itself and sewing it into a cylindrical structure by means of a continuous horizontal mattress suture. Thus, fine mesh nylon tubes with a single longitudinal suture line were created (Fig. 1). Such grafts could be satisfactorily manipulated and appeared to function well, but loss of blood through the nylon mesh was excessive. This made it necessary to incorporate a less porous material between two layers of the same nylon to form a cloth-like material more impervious to blood. This material was made by placing a layer of thin polyethylene between two layers of nylon and thermally fusing the three layers together. A pressing iron was used and the desired temperature was discovered by trial and error. The resultant material was somewhat less pliable than nylon alone but was as easily sutured and manipulated. In addition,

Aided by a grant from the Michigan Heart Association and the Research Corporation of the Detroit Receiving Hospital.

From the Department of Surgery, Wayne University College of Medicine, Detroit Receiving Hospital, and the Dearborn Veterans Administration Hospital.

it had the advantage of obviating significant transmural blood loss.

A total of twenty dogs were used for experimental purposes. Nylon-polyethylene grafts were

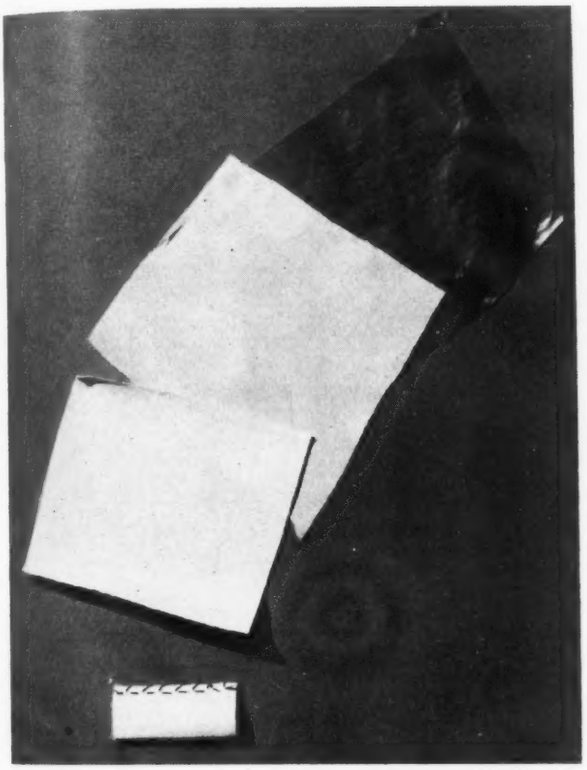

Fig. 1. Components of nylon-polyethylene graft and finished product.

introduced into seven thoracic aortas, eight abdominal aortas, and five femoral arteries. All grafts were sterilized by the simple expediency of autoclaving, and this produced no adverse effect upon the integrity of the tubes. The vessels receiving the grafts were simply mobilized, transected, and allowed to retract, though in some instances a small portion was resected to accommodate longer nylon segments. The vessels involved were occluded for periods ranging between seventeen and forty-five minutes and the grafts were sutured into place by means of interrupted everting sutures of No. 4-0 or No. 5-0 arterial silk. All animals were given penicillin in the postoperative period, but postoperative care was otherwise routine. Three dogs died of pneumonia, and the remainder were followed for various periods of time. A number were sacrificed for the purpose of gross and histologic study, and the remainder underwent angiography for evaluation of the patency of the grafts (Fig. 2).

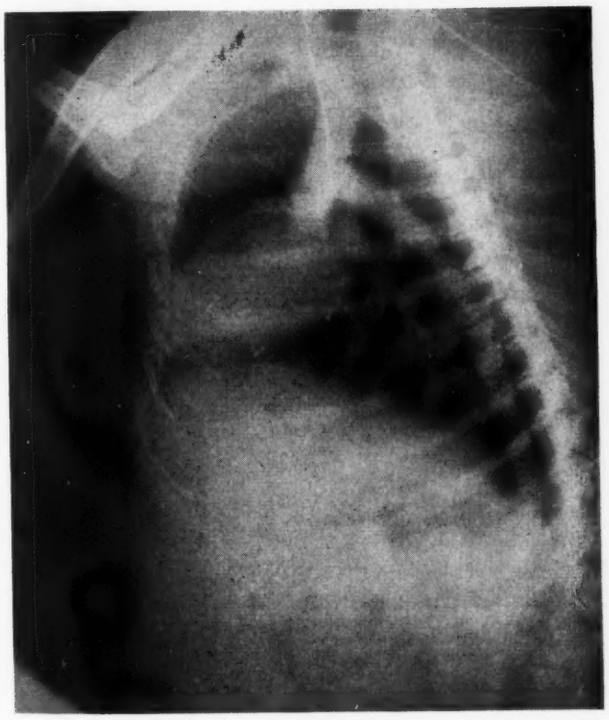

Fig. 2. Angiogram showing nylon-polyethylene graft after sixteen weeks.

Results

By reference to Table I, it is noted that all thoracic grafts were patent at intervals ranging between one week and twenty-four weeks. Seven of eight abdominal grafts were found to be patent after a period of from two days to ten weeks.

TABLE I

Vessel	Number of Cases	Period	Patency
Thoracic aorta	7	24 weeks	7 (100%)
Abdominal aorta	8	10 weeks	7 (87%)
Femoral artery	5	12 weeks	2 (40%)

Only two of five femoral grafts were open after five to twelve weeks of observation. It is noteworthy that in the only instance of thrombosis of an abdominal graft, the dog was the smallest used, the aorta having a diameter of only 6 mm. This may or may not have been contributory, but since the peripheral tubes were clotted in 60 per cent of the cases, there is likelihood that the calibre of the vessel is an important consideration.

The gross and histologic appearance of the grafted segments tended to corroborate the observations of Shumacker reported in 1955, and were comparable to changes previously described by Voorhees, Jaretzki and Blakemore in 1952.[6] The specimens removed* as early as two and

*We wish to thank the Pathology Department of Wayne University Medical College for the gross and microscopic interpretation of specimens.

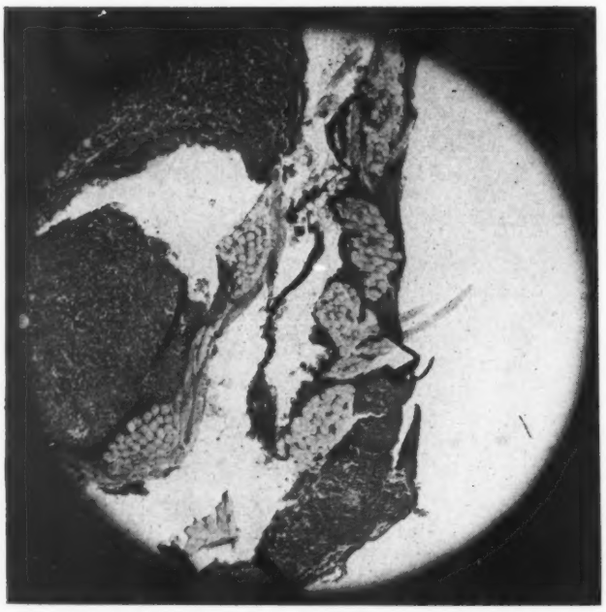

Fig. 3. Microscopic view (90×) of internal surface of graft after two weeks.

three days exhibited a shiny pink appearance on their internal surfaces which proved microscopically to be due to deposition of a layer of fibrin. Those studied at one week showed a similar layer of fibrin and the interstices were also filled with platelet thrombus.

At two weeks, the internal surface exhibited little gross difference from the one week specimens. Externally, however, the grafts were coated with a wall of fibrous tissue which was continuous with adventitia proximal and distal to the graft. Microscopically the interior of the graft at two weeks was again coated and the interstices filled with fibrin (Fig. 3). At three weeks the grafts showed a gross appearance very similar to that at two weeks (Fig. 4). Microscopically, however, the first indication of endothelialization of the interior of the tubes was seen at this time. The interstices of the nylon near the anastomoses were infiltrated with proliferating fibroblasts and there was extension of this fibrous tissue along the graft beyond the anastomoses for a distance of 1 mm. Beyond this the graft was coated with fibrin only. Again there was a thick layer of vascular fibrous tissue external to the graft which fused with adjacent adventitia. A few foreign body giant cells were seen but there was no appreciable inflammatory response to the nylon-polyethylene material (Fig. 5).

The next graft studied was removed at ten weeks. This was an abdominal segment of 2.5 cm. length which grossly was inseparable from adjacent aorta. Again a well-developed fibrous tube fused with adventitia enveloped the graft. Internally a layer of endothelium-lined fibrous

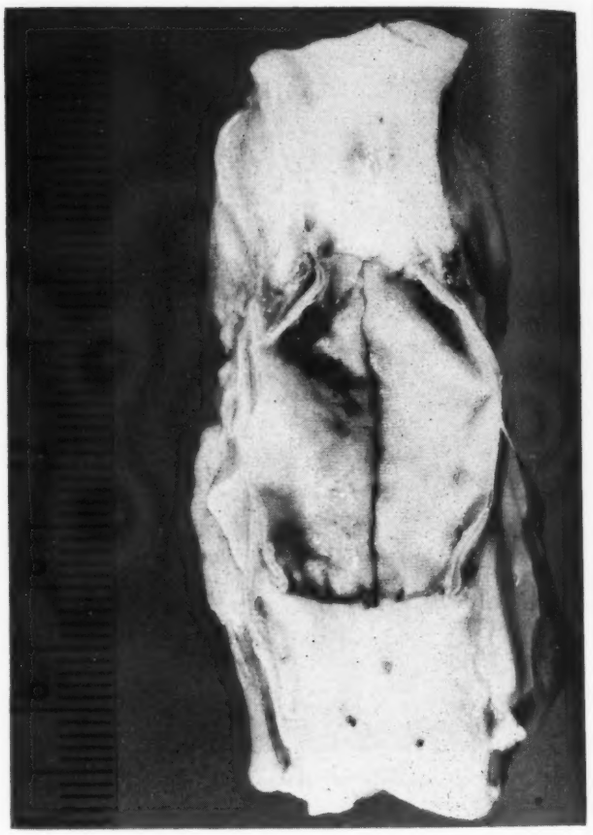

Fig. 4. Gross specimen removed after three weeks.

tissue was seen to cover all of the graft except the central 1 or 2 mm. In this area the graft was covered by fibrin alone.

Hence, it appeared that the changes incident to the introduction of nylon-polyethylene tubes began with the deposition of a layer of fibrin on the internal surface. With passage of time this was replaced by fibrous tissue which ultimately became lined with cells having an endothelial appearance. Externally the grafts became coated with a vascular fibrous layer which was inseparable from proximal and distal adventitia. The entire process has been referred to as arterialization of the graft.

Case Reports

In view of the favorable results seen in the experimental laboratory, it appeared that attempts at clinical application were justified. To date,

two nylon-polyethylene grafts have been used at our institution for replacement of the abdominal aorta and aortic bifurcation. A brief report of these cases follows.

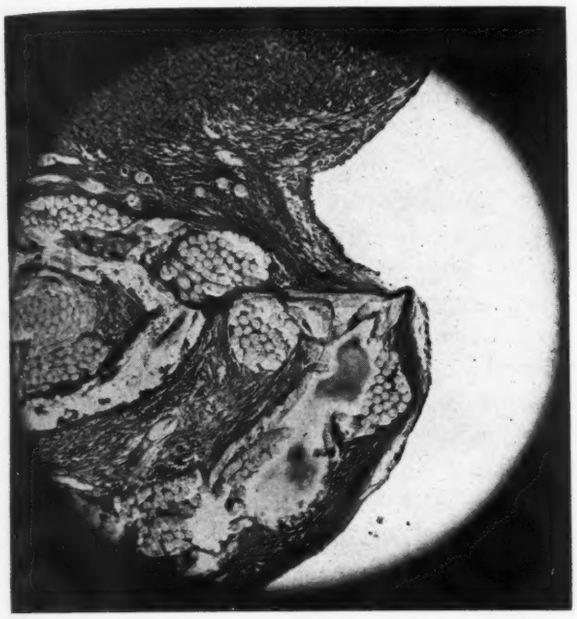

Fig. 5. Microscopic view (90×) of graft after three weeks, showing fibrous tissue growth and endothelium lining internal surface.

The first nylon-polyethylene graft was used in a fifty-eight-year-old man with a Leriche syndrome. This patient underwent resection of the abdominal aorta and bifurcation from the level of the inferior mesenteric artery to the external iliac arteries. A preconstructed graft was used as a replacement. Because of the extensive disease proximal to the graft, however, good flow into the nylon-polyethylene tube could not be established and femoral pulses were never restored. However, the patient is living and has tolerated the foreign body material without complication. Moreover, his vascular disease has remained stable over a six-month follow-up period.

The second patient was a sixty-year-old man who had an aneurysm of the abdominal aorta. This extended from the renal to the common iliac arteries and was found to be dissecting in the region of the left common iliac. This lesion was also resected and a nylon-polyethylene graft, tailored at the operating table, was introduced (Fig. 6). The graft distended readily with blood following release of the clamps, pulsated well, and transmitted good femoral pulsations. However, the patient suffered an extension of a previous myocardial infarct in the postoperative period and expired. Good femoral pulses were present until death. At autopsy, there was no indication of hemorrhage from the graft and the structure was patent.

Fig. 6. Nylon-polyethylene prosthesis in place.

Discussion

It appears that the applicability of non-viable materials in aortic replacement is an established possibility. The advantages of such substances as nylon are apparent from our work and also from the reports of previous investigators. Nylon is economical, freely available, easily stored and readily sterilized. It has the further advantage of being well tolerated by the patient and of undergoing arterialization. In addition, such cloth-like materials may be tailored at the operating table. Thus, one may fashion a graft which readily conforms to the diameter and length necessary in a given situation. Unfortunately, time has not permitted evaluation of durability, but to date there has been no indication of disintegration or aneurysm formation.

It appears that the calibre of the vessel is an important consideration in its evaluation for a nylon prosthesis. Since the femoral grafts in this study were clotted in 60 per cent of the animals, the use of such grafts in small peripheral vessels cannot be recommended. However, the high percentage of patency in the aortic grafts leads us to anticipate application of these tubes as substitutes for the diseased aorta. Whether such non-viable grafts will prove to be more satisfactory than homografts remains to be seen. In any case, it is our contention that the future progress in aortic grafts lies in non-viable material. While our results indicate that polyethylene-nylon grafts are satisfactory, we are studying other material in the hope that they will have added advantages.

(Continued on Page 572)

Coagulation Homeostasis

By Earl A. Peterman, M.D.
Detroit, Michigan

I. Observations on Anticoagulant Therapy, Thromboplastin Insufficiency, and Plasma Fibrinogen Levels in Intravascular Clotting

THROMBOPHLEBITIS and thromboembolism continue to show a high mortality and morbidity, although much has been accomplished in the control of these conditions with anticoagulants in the past decade. However, the methods and principles of anticoagulant treatment have not been fully accepted by the profession, probably because of serious drawbacks associated with it. The present state of acceptance of anticoagulant therapy has been well summarized in a recent article by Schnur.[1] His remarks probably apply not only to mycardial infarctions but also to the problem of intravascular clotting in general. He states that "the problem is not which anticoagulant to use but rather which patient to treat. . . . The solution of this problem would lead to more rational therapy in which possibly 10 per cent of patients would be treated with 100 per cent effectiveness instead of routine treatment of all patients, presently advocated by some, which may be effective in only 10 per cent of the cases." His statement to a large extent reflects the current consensus of opinion in regard to anticoagulant therapy.

The difficulties encountered with anticoagulant therapy are inherent in the method itself and exist regardless of which anticoagulant is used. The intent of anticoagulant therapy is to render the blood less coagulable and thereby stop formation and spread of intravascular clotting. Anticoagulants such as heparin or dicumarol are administered up to the point of individual tolerance, at which time the blood exhibits very little coagulating ability. The factor of safety between the desired therapeutic effect of the anticoagulant and the production of an outright hemorrhagic syndrome is very small, a situation which explains the hazardous nature of the treatment and accounts for the poor results in inexperienced hands.

The main drawback to the development of better anticoagulant therapy is that the hypothesis upon which it is based lacks consideration for the natural physiologic balances and counterbalances which control the coagulation mechanism. In order to be effective, anticoagulant therapy must overpower and hold in abeyance the natural balances which ordinarily function in maintaining a normal coagulability in the blood. The elimination of these natural controls creates real dangers regardless of the skill with which it is done.

In normal physiology the clotting time of the blood is maintained to within rather narrow limits by a delicate system of balances and counterbalances spoken of as homeostasis.[2] One of the mechanisms in this complicated system of homeostasis is the reciprocal balance between the amount of fibrinogen in the plasma and the activity of the thromboplastin mechanism. The amount of fibrinogen in the plasma is a resultant function of homeostasis and regulated inversely proportional to the state of activity existing in the thromboplastin mechanism at the time. When the activity of the thromboplastin mechanism is increased the fibrinogen simultaneously drops and when the activity of the thromboplastin mechanism goes down the fibrinogen goes up. This reciprocal relationship aids in maintaining normal coagulation by maintaining the proper balance between the physiologic forces which produces hypo-coagulability on the one hand and hyper-coagulability on the other.

With these concepts of the natural physiologic balances in mind, several important observations on anticoagulant therapy and intravascular clotting have been made. The first observation of importance was that heparin administered in large amounts as an anticoagulant caused a compensa-

From the Department of Surgery, Providence Hospital, Detroit.

tory increase in the plasma fibrinogen level. The aim of anticoagulant therapy is to reduce the ability of the thromboplastin mechanism to convert fibrinogen to fibrin. Heparin accomplishes this result because of its ability to inactivate thromboplastin itself. As the thromboplastin is inactivated, the equilibrium between thromboplastin and fibrinogen is disturbed, and in order to maintain normal clotting in the blood, the fibrinogen goes up to compensate for the weakened activity in the thromboplastin mechanism. The anticoagulant action of heparin, therefore, not only inactivates thromboplastin but also increases the plasma fibrinogen as a result of the thromboplastin inactivation.

The elevating effect of heparin on the plasma fibrinogen is illustrated in Figure 1, made from data obtained from a forty-nine-year-old man with recurrent thrombophlebitis. The first effect of the heparin treatment, however, was to cause a drop in the fibrinogen. This drop was interpreted in conformance with previous work[3] to indicate an existing deficiency of heparin. This finding may account for some of the good results obtained with heparin treatment. At any rate the heparin did not act as an antithromboplastin during the first month of treatment, but it did begin to act as an antithromboplastin, as shown by an increase in the fibrinogen during the second month of treatment. The amount of fibrinogen increased considerably, long before the coagulation time was influenced, which demonstrated the tremendous compensatory power of the homeostatic mechanism. When the heparin was stopped, the plasma fibrinogen remained high.

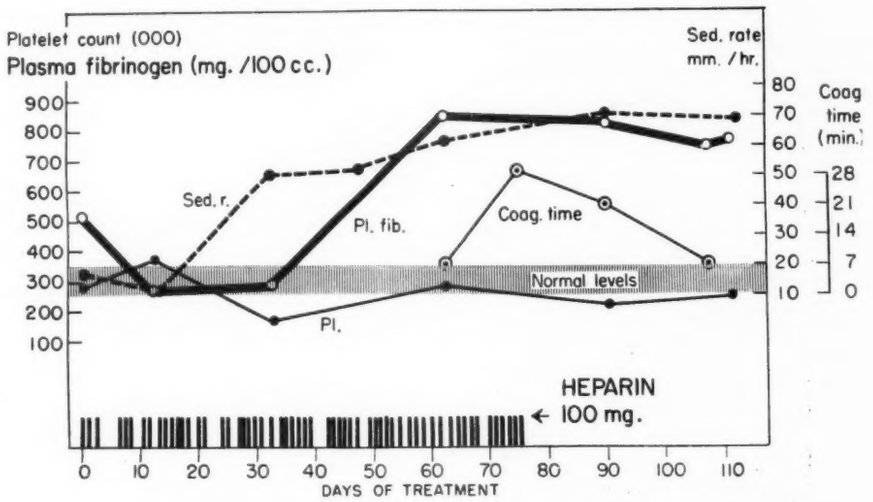

Fig. 1. The effect of heparin on the plasma fibrinogen level in a forty-nine-year-old man with acute recurrent thrombophlebitis. The initial drop in the fibrinogen was interpreted to indicate a deficiency of heparin in this patient. As replacement therapy reached the normal physiologic level the heparin then acted as an antithromboplastin causing a compensatory rise in the plasma fibrinogen. Failure of the fibrinogen level to return to normal after the heparin was stopped indicated an inadequate thromboplastin formation.

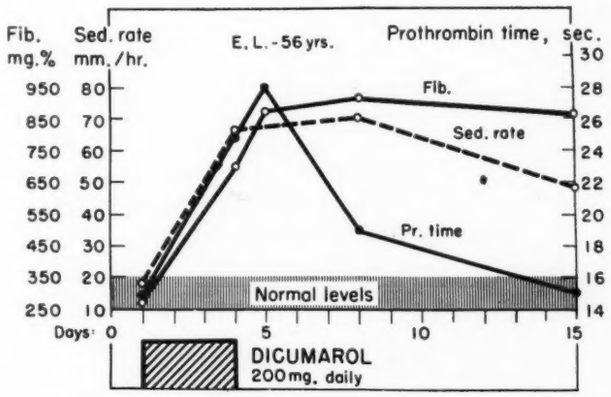

Fig. 2. The elevating effect of dicumarol on the plasma fibrinogen level in a fifty-six-year-old man with recurrent thrombophlebitis in remission. The compensatory rise in the fibrinogen caused by three days' treatment with this anticoagulant did not return to normal after the drug was stopped. The persistent high fibrinogen level after the prothrombin time returned to normal indicated an impaired thromboplastin mechanism.

The second observation of importance was that anything which interfered with or reduced the activity of any necessary part of the thromboplastin mechanism caused a compensatory rise in the

plasma fibrinogen. Bishydroxycoumarin and its homologues weaken the thromboplastin mechanism indirectly by the inactivation of vitamin K which is necessary to the formation of prothrombin.

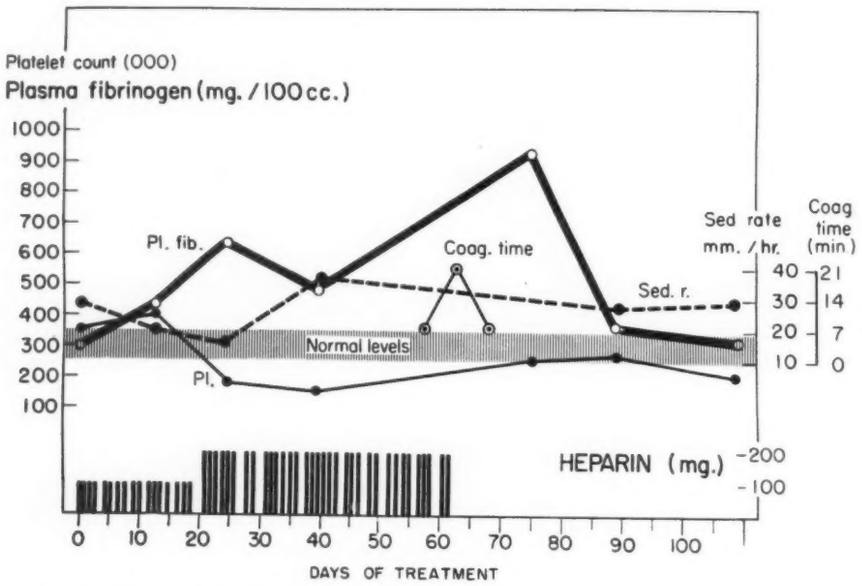

Fig. 3. Physiologic effect of heparin in a thirty-six-year-old man who had never had thrombophlebitis. The plasma fibrinogen level increased immediately in response to the anticoagulant effect of the heparin on the thromboplastin mechanism, which indicatd that a heparin deficiency did not exist. The fibrinogen level dropped to normal when the heparin was stopped, which indicated a normal thromboplastin metabolism.

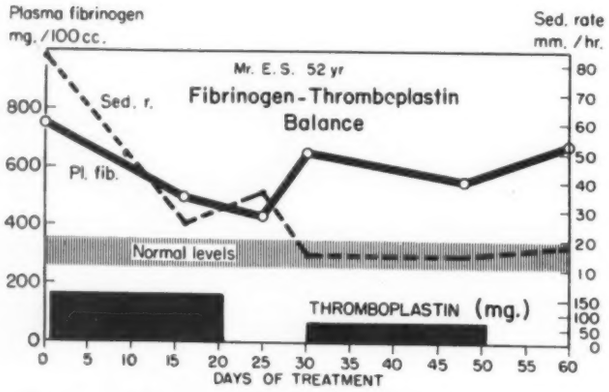

Fig. 4. Graphic presentation of data obtained on a patient with acute recurrent thrombophlebitis showing the reducing effect of thromboplastin therapy on the plasma fibrinogen level. The persistent high fibrinogen level demonstrates the physiologic imbalance in fibrinogen-thromboplastin homeostasis existing in patients with chronic recurrent thrombophlebitis, indicating an insufficiency in thromboplastin metabolism.

Prothrombin is a very necessary part of the thromboplastin mechanism. An illustration of the elevating effect of dicumarol therapy, for instance, on the plasma fibrinogen level is shown in Figure 2, made from data obtained from a fifty-six-year-old man with recurrent thrombophlebitis in remission. The plasma fibrinogen increased sharply along with the prothrombin time, which nicely demonstrated the operation of the homeostatic mechanism in increasing the fibrinogen to compensate for the crippling effect of vitamin K inactivation on the thromboplastin mechanism. The plasma fibrinogen did not return to normal with the prothrombin time.

The third observation of importance was that patients with intravascular clotting had an associated hyperfibrinogenemia. In a series of twenty-three consecutive cases yet to be reported the plasma fibrinogen showed a very significant elevation.

The fourth observation of importance was that administration of oral homologous thromboplastin reduced both the hyperfibrinogenemia and the intrinsic inflammatory process in the veins (see case report and Figure 4).

The fifth important observation was that patients with intravascular clotting showed evidence of an insufficiency in thromboplastin metabolism. In the first place the fact that hyperfibrinogenemia was associated with intravascular clotting showed weakness in the thromboplastin mechanism. The increased fibrinogen was a compensatory measure created by nature in an

attempt to insure normal clotting ability of the blood in the presence of insufficient thromboplastin activity.

Evidence of thromboplastin insufficiency was also shown by the persistent elevation of the plasma fibrinogen level after the heparin was stopped in Figure 1, and after the dicumarol was stopped in Figure 2. In these cases the fibrinogen level failed to return to normal from where it started before anticoagulant therapy was given. Since the normal individual was able to form adequate thromboplastin to cause his fibrinogen level to return to normal under similar circumstances, as in Figure 3, the persistent elevation of the fibrinogen in patients with intravascular clotting indicated that they were unable to generate enough thromboplastin for their own needs.

The most compelling evidence that patients with intravascular clotting have an insufficiency in the thromboplastin mechanism was the clinical and laboratory response obtained with thromboplastin therapy. The administration of thromboplastin showed a clinical response within twenty-four hours. The signs and symptoms of acute thrombophlebitis were reduced to normal practically on a predictable schedule. The plasma fibrinogen level returned toward normal as the coagulation mechanism came into balance. These effects of thromboplastin treatment in acute thrombophlebitis are illustrated by the following case report.

Case Report

Case 1.—E. S., a man aged fifty-two, entered the hospital November 15, 1953, complaining of severe pain and swelling of the left leg which developed without apparent cause. He had suffered a similar attack fourteen years previously, following a left inguinal herniorrhapy and another attack four years ago.

Examination.—The patient appeared pale and evidently ill. Oral hygiene was poor. The gums were spongy and inflamed. Three of the remaining nine teeth were loose, and three roots could be seen at the gum margin.

The chest had normal expansion with a respiration rate of 20. Blood pressure was: systolic 138 mm. Hg, diastolic 78 mm. Hg. The rate was 86 per minute. There were no murmurs heard.

The abdomen had a left inguinal herniorrhaphy scar, otherwise normal.

The left leg was flexed at the knee because of the pain in straightening it out. Dorsiflexion of the foot increased the pain. The posterior portion of the lower leg was swollen, reddened, hot, and painful. From the posterior medial aspect of the left knee a reddened area extended up the leg over the course of the great saphenous vein. The surface redness faded about midthigh but hardened vein could be palpated almost to the groin.

Laboratory Data.—Hemoglobin was 13.0 gm., red blood cells 4,180,000, white cells, 6,600, neutrophils 60, nonfilamented 3, lymphocytes 37, eosinophils 3, erythrocyte sedimentation rate 82 mm. in one hour. Plasma fibrinogen was 770 mg. per cent. Serum glucosamine was 140 mg. per cent.

Treatment.—Oral thromboplastin* and ligation of the great saphenous vein at the sapheno-femoral junction.

Course in the Hospital.—The first effects of thromboplastin therapy were noted within twenty-four hours. The pain and soreness were decidedly lessened and the redness over the inflamed veins began to fade. In forty-eight hours the redness had faded to a brownish discoloration, and the patient was able to walk about the ward. A moderate amount of edema developed around the left ankle but otherwise the patient made an uneventful recovery. He was transferred to outpatient care at the end of the first week.

Outpatient Course.—Thromboplastin therapy was continued for a total of twenty-one days. On the twenty-fifth day the plasma fibrinogen was down to 410 mg. per cent, and the edema of the ankle had cleared up. The patient returned to work. Another fibrinogen check was made on the thirtieth day. Although the patient was clinically well the fibrinogen had increased to 650 mg. per cent. Thromboplastin therapy was again started at one-half the former dosage and continued for another twenty-one days. The fibrinogen dropped to 560 mg. per cent. It was checked again ten days after stopping the thromboplastin and found to be increased to 675 mg. per cent. He has remained clinically free from thrombophlebitis since, regardless of the increased fibrinogen.

Comment

The reciprocal balance between fibrinogen and thromboplastin in the mechanism of homeostasis of blood coagulation is well illustrated in Figure 4, made from data obtained in the study of this patient. In the acute attack the plasma fibrinogen was high and the patient was clinically ill with swollen, reddened, and painful veins in the leg. The high fibrinogen physiologically indicated a low activity in the thromboplastin mechanism

*Thromboplastin (as Thromboplex) was supplied by Drug Industries Company, Detroit.

and as soon as thromboplastin was administered the phlebitis receded. Within twenty-four hours the pain had stopped, and the hot, reddened and swollen areas subsequently disappeared.

While the amount of thromboplastin given this patient was adequate to stop the acute inflammatory process in the veins it was not adequate to completely balance the clotting mechanism as shown by the fact that the fibrinogen level at no time reached normal. As soon as the thromboplastin treatment was stopped, the fibrinogen level quickly increased, which indicated that this patient was not producing enough thromboplastin for his own needs or that some factor was inactivating his thromboplastin faster than his body could synthesize it. At any rate the insufficiency in the thromboplastin mechanism shown in Figures 1 and 2 was also shown in this patient by the persistent hyperfibrinogenemia. The persistent high level of fibrinogen does not appear to cause any pathologic sequelae unless trauma, stasis, inflammation, or some other precipitating factor coincides with it.

It is not difficult to visualize intravascular clotting where more than twice the normal amount of readily coagulable protein is circulating in the blood, but it is somewhat more difficult to visualize the profound effect of exogenous thromboplastin in allaying the acute inflammatory process in the vein wall and the surrounding fibrous tissue. The apparently specific effect that thromboplastin administration had on more than twenty-three cases of phlebitis strongly indicates that both the intrinsic inflammation in the vein wall and the hyperfibrinogenemia were caused by an insufficiency in thromboplastin metabolism.

The increased amount of fibrinogen found in the plasma of patients with intravascular clotting is very significant from two standpoints. The first is that the overload of coagulable protein in the circulation may contribute to thrombus formation, and the second is that it gives a clue to the probable pathologic physiology upon which the intrinsic inflammation in the vein wall develops. The amount of fibrinogen in the plasma taken as a measure of the imbalance in the blood coagulation mechanism points to an insufficiency in thromboplastin metabolism as the cause of the imbalance. The validity of that indication was strengthened by the apparently specific reduction in the plasma fibrinogen level and the immediate response of the acute inflammation to thromboplastin treatment.

These observations point to the need to re-evaluate the physiologic basis for the administration of anticoagulants. Heparin inactivates thromboplastin directly and produces a compensatory rise in the plasma fibrinogen. The coagulation time is normal in these patients and remains so until homeostasis can no longer balance the loss of thromboplastin by increasing the fibrinogen. The conversion of a normal coagulation time to an abnormally long one is an indication that the range of normal homeostasis is being exhausted and the patient is on the verge of a hemorrhagic syndrome. The administration of heparin causes a paradoxical rise in the fibrinogen which appears to enhance the condition it is intended to cure.

The situation is similar with dicumarol. The prothrombin time is normal in the presence of intravascular clotting before treatment and abnormal after treatment. Dicumarol weakens the thromboplastin mechanism indirectly by inactivating vitamin K and the result on the fibrinogen level is the same. The fibrinogen rises until it can no longer compensate for the crippled thromboplastin mechanism, and hemorrhage results from extreme hypocoagulability. Regardless of which anticoagulant is used, the therapeutic result depends for its effectiveness upon rendering the natural mechanism for the control of hypocoagulability in the body impotent.

On the other hand a consideration of the physiologic balances and counterbalances which constitute the homeostasis of blood coagulation point to weakness in the thromboplastin mechanism as the origin of intravascular clotting. Correction of the weakness with thromboplastin replacement appears indicated.

Summary

Anticoagulant therapy increases the hyperfibrinogenemia already present in patients with intravascular clotting. Thromboplastin therapy reduces the hyperfibrinogenemia, the phlebitis and the intravascular clotting. The evidence at hand indicates that intravascular clotting occurs because of an imbalance in the homeostasis of blood coagulation produced by an insufficiency in thromboplastin metabolism.

Acknowledgment

Grateful acknowledgment is made to the Department of Medical Art, and the Department of Medical Photography, Wayne University College of Medicine, for their help in preparing the graphs for publication.

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II. Acute Thrombophlebitis; Mechanism and Treatment with Oral Thromboplastin

THROMBOEMBOLIC disorders of the coagulation mechanism are characterized by a tendency of the blood to form clots inside the blood vascular system. Since the actual factors in the etiology of intravascular clotting are unknown, anticoagulant therapy has been used more or less empirically to reduce the ability of the blood to clot and thereby retard the progress of the disease. This method of preventing the spread of intravascular clotting carries with it certain inherent dangers of overtreatment hemorrhage, which greatly limit its usefulness, and stimulates further efforts toward a better understanding of the pathologic physiology involved.

In effect, all anticoagulant drugs are directly or indirectly antithromboplastin in their final action. Their effectiveness depends upon the efficiency with which they inactivate or block the action of thromboplastin. Since thromboplastin is necessary to the stability of coagulation homeostasis, blocking its physiologic action not only eliminates the natural factor of safety against excessive bleeding but also creates other serious imbalances in the coagulation mechanism in addition to the ones already present in the thromboembolic disorders.

Following the discovery of an anticoagulant substance in the liver by McLean[1] in 1916, later named heparin by Howell and Holt,[2] the study of its antithromboplastin properties led Jorpes[3] to advocate its use in the treatment of thrombosis. This created the inference that intravascular clotting was caused by too much thromboplastin in the system. Although there is much evidence that increased coagulability of the blood is an important factor in thrombosis, there is no evidence that the increased coagulability is due to an increase in thromboplastin. Nor is there any evidence that the increased coagulability is due to an abnormality in any other part of the coagulation mechanism with the exception of the plasma fibrinogen.

It has been known for a long time that an increase in the plasma fibrinogen was always present in intravascular clotting, but the reason for it was not understood until recent studies[4,5] showed that heparin, protamine sulfate, the coumarin compounds and other antithromboplastin substances cause the fibrinogen level to rise. Likewise, the administration of thromboplastin and other substances which activate, potentiate and support the thromboplastin mechanism caused the plasma fibrinogen level to fall. These observations showed that the plasma fibrinogen level was intimately tied to the functional capacity of the thromboplastin mechanism which pointed up the real significance of the hyperfibrinogenemia found in patients with intravascular clotting. When these findings were interpreted in the light of physiologic homeostasis, the increase in the plasma fibrinogen found in patients with thromboembolic disorders signified that the activity of the thromboplastin mechanism was low—a condition physiologically opposite to the one generally supposed.

Using the plasma fibrinogen level as an index of potential coagulability, and as a guide to therapy, the present report is based on the treatment of a series of patients with acute thrombophlebitis, using oral homologous thromboplastin to physiologically balance the indicated defect in the coagulation mechanism as a corrective measure.

Material and Methods

Patients with acute thrombophlebitis in the lower extremity were chosen for this study for several reasons. Thrombophlebitis is more common in the legs than elsewhere in the body, and since the disease is essentially the same regardless of where it occurs, these cases may be taken as physiologically representative of thromboembolic disorders in general. Ligation of the great saphenous vein at the saphenofemoral junction blocks off the area under observation and affords an added precautionary measure against untoward results from embolism during the period of recovery. The acutely inflamed veins in the legs are readily available for inspection and palpation so that the early clinical changes due to treatment are open for continuous observation. The increase in the plasma fibrinogen is greatest in the acute stage of the disease and the drop in the fibrinogen level following treatment is more pronounced, which for demonstration purposes eliminates the pitfalls and confusion of the false normal[4] readings which are often encountered in the chronic stage of the disease.

Among other blood studies the coagulation time was done by the Lee-White method, the prothrombin time by the Quick method, the erythrocyte sedimentation rate by the Westergeen method, and the plasma fibrinogen determinations by the method of Ratnoff and Menzie.

Aside from ligating the great saphenous vein in each instance the only other treatment given was oral homologous thromboplastin.* As soon as the examination and the laboratory tests were taken each patient was given 100 mg. of a potent thromboplastin preparation sealed in enteric coated tablets four times daily. Frequent clinical observations were made and the laboratory findings were tabulated.

Results

The results are reported in Table I. There were fourteen women and nine men with an average age of forty-nine years. Twelve of these patients had not had previous attacks, while eleven patients had one or more previous episodes. The most significant finding in the laboratory data was the marked increase in the plasma fibrinogen level. The lowest was 480 mg. per cent and the highest was 1,350 mg. per cent, while the average for the group was 675.5 mg. per cent. Only five of the twenty-three patients had a markedly elevated erythrocyte sedimentation rate while eight were within normal limits with nine moderately elevated. Thromboplastin treatment was administered from seven to seventy-eight days with an average of 26.3 days. Six of the patients were transferred to the group for long term study on 200 mg. of thromboplastin daily as a maintenance dosage to prevent future attacks. All members of the group have remained well during the period of observation since discontinuance of treatment. One patient, Case 17, died from unrelated causes eleven months after discontinuing therapy. There were no withdrawal symptoms noted in this series.

The most significant clinical finding was the apparently specific effect of the thromboplastin treatment on the acute inflammatory process in and around the affected veins. The recovery pattern followed approximately the same path in each case varying only in the length of time required. In from eighteen to twenty-four hours after the thromboplastin treatment was started the acute fiery red inflammation in and around the veins involved began to change color. Fading a little at first, the fiery red color changed to a brownish tint as the swelling began to subside, and this was associated with marked relief from pain and tenderness on palpation. In the period from twenty-four to thirty-six hours of treatment, the brownish color deepened as the redness completely disappeared and the swelling around the veins continued to recede. In forty-eight hours, the swelling diminished to a brawny induration with only slight tenderness on pressure. Beyond the forty-eight-hour period convalescence continued at a different rate for each patient depending upon the clinical conditions associated with the thrombophlebitis. Case 1 and Case 12 each had an extended convalescence period complicated by surgical procedures and are reported more in detail.

Case Reports

Case 1.—J. G., a white man, aged forty-two, was admitted to Providence Hospital on October 31, 1953, with extensive second and third degree burns of the neck, back, chest, left arm, and left side of the body. Approximately one-fifth of the body area was involved.

Course in the Hospital.—The burned area was debrided by irrigation and he was treated for shock. He

*As used in this study thromboplastin as "Thromboplex" was supplied by Drug Industries Company, Detroit.

TABLE I. DATA ON 23 PATIENTS WITH ACUTE THROMBOPHLEBITIS TREATED WITH ORAL HOMOLOGOUS THROMBOPLASTIN

Case	Patient	Age	Sex	Part Involved	Previous Attacks	Fibrinogen mg./100 c.c. Plasma	Sedimentation Rate	Days of Treatment	Fibrinogen mg./100 c.c. Plasma	Sedimentation Rate	Remarks
1	J.G.	42	M	Both legs	0	788	56	78	340	28	Severe 3d° body burns. Bilateral massive thrombophlebitis of the legs began to develop 40 days post-accident. Heparin failed to stop the spread. The response to thromboplastin therapy was immediate and rapid. See case report.
2	V.R.	49	Fe	Left leg	0	680	26	21	330	14	Massive acute thrombophlebitis followed trivial injury to left midthigh. Immediate and rapid response to thromboplastin therapy.
3	E.L.	56	M	Both legs	2	814	43	28	435	20	Acute exacerbation of a chronic recurrent thrombophlebitis. Marked improvement first 48 hours of thromboplastin treatment. Continued to complete recovery.
4	R.M.	49	M	Right leg	1	746	34	24	390	18	Rapid improvement first 24 hours. Complete recovery.
5	F.S.	58	M	Left leg	2	710	82	21	345	24	Attack began to subside in 18 hours. Complete recovery.
6	E.R.	55	Fe	Right leg	3	580	38	30	300	12	Pain stopped in 24 hours. Inflammation cleared in 48 hours. Maintenance therapy to prevent recurrence.
7	H.S.	41	Fe	Left leg	4	790	62	19	410	30	Acute flare-up in post-phlebitic syndrome. Immediate response to thromboplastin treatment. Discharged on maintenance therapy.
8	J.S.	56	Fe	Right leg	1	520	18	20	230	12	Rapid and complete recovery.
9	A.S.	43	M	Both legs	0	490	12	18	210	8	Rapid and complete recovery.
10	H.A.	70	Fe	Right leg	3	505	23	43	340	15	Acute flare-up in post-phlebitic syndrome. Chronic ulcer formation. Effects of thromboplastin treatment noted in 36 hours. Complete recovery. Ulcer healed.
11	E.B.	56	Fe	Right leg	2	655	19	22	370	10	Acute symptoms began to subside in 24 hours. Complete recovery.
12	G.Y.	28	M	Right leg	0	784	68	53	405	26	Acute massive thrombophlebitis. Oral sepsis. Primary recovery began in 24 hours. Flare-up following tooth extraction. Bloody sputum 5th week. Complete recovery.
13	R.B.	49	Fe	Left leg	3	484	21	14	370	12	Acute symptoms cleared in 48 hours. Continued with maintenance therapy.
14	M.B.	64	Fe	Right leg	0	910	43	36	415	18	Acute attack following slight injury to lower leg. Chronic arthritis. Acute symptoms. Controlled in 24 hours. Arthritic pains continued.
15	R.J.	31	M	Right leg	0	745	38	7	390	20	Acute attack, 3 weeks' post-operative bowel obstruction and intravenous feeding. Symptoms cleared completely in 24 hours.
16	A.C.	56	Fe	Right leg & pelvis	1	480	16	21	240	8	First attack 8 months previously after cholecystectomy required 3 months in bed. Flare-up cleared completely in 21 days. First effects seen in 18 hours.
17	V.E.	58	Fe	Both legs	0	1350	96	30	505	36	Acute thrombophlebitis 3 weeks post-splenectomy. Dramatic response began in 18 hours with marked drop in fibrinogen.
18	W.F.	40	M	Right leg	0	760	34	28	315	19	First effect of thromboplastin treatment noted in 18 hours. Quite marked in 24 hours.
19	A.M.	36	Fe	Left leg	0	618	26	21	320	12	Rapid response. Complete recovery.
20	G.W.	61	Fe	Left leg	1	724	18	18	408	10	Acute symptoms began to subside in 24 hours. Good recovery. Discharged on maintenance therapy.
21	H.R.	32	Fe	Right leg	0	510	23	21	345	14	First response noted in 24 hours. Complete recovery.
22	A.P.	44	M	Left leg	0	490	15	14	315	12	Acute symptoms subsided in 24 hours. Complete recovery.
23	M.R.	54	Fe	Right leg	0	605	16	21	345	14	Responded to treatment in 24 hours. Complete recovery.
Average		49			1	675.5	35.5	26.3	351	17.0	

recovered well from the initial shock and became ambulatory by the end of the second hospital day. The first dressing was changed on the fifth day and then daily thereafter. The healing process appeared delayed, otherwise normal. By the thirty-ninth hospital day the slough appeared complete with sufficient granulation tissue suitable for skin grafting. On the fortieth day the patient began to complain bitterly of pain in the inner aspect of the left mid-thigh and lower leg. Within twenty-four hours the course of the superficial veins became swollen, red, and very painful to touch. A diagnosis of acute thrombophlebitis was made and 200,000 units of depo-heparin were given intramuscularly. This was repeated each twenty-four hours. In spite of heparin treatment the inflammatory process continued. The right lower leg also became involved and the inflammation continued to spread upward. The constant use of narcotics was necessary to relieve pain.

The plasma fibrinogen was 788 mg. per cent (normal 250 to 350 mg. per cent). On the fifth day of the

acute process, heparin therapy had failed to halt the spread and the patient by that time had bilateral massive thrombophlebitis extending up to the groin. Since an increase in heparin treatment was contraindicated because of the large open raw surface from burns, it was decided to discontinue it and institute thromboplastin therapy. Within twenty-four hours the response was evident by a definite decrease in pain and a change from fiery red to a dull brownish tint over the course of the inflamed veins. Within forty-eight hours after the beginning of thromboplastin treatment the pain had disappeared completely and the acute phlebitis had receded to a brawny induration which was only somewhat tender to touch.

On the third day of treatment bilateral high saphenous ligations were carefully done at the saphenofemoral junction under local anesthesia. Upon severing these veins, massive thrombi oozed out. The surgery was accomplished without incident and the thromboplastin treatment continued. The first plastic surgery and skin grafting was begun twelve days after the bilateral saphenous ligations. The tissues appeared to heal rapidly with nearly 100 per cent take of the grafts. Thromboplastin therapy was continued for seventy-eight days during the remainder of his hospital stay, during which time the patient underwent a series of skin grafting operations. He was discharged in good condition and has remained well since.

Case 12.—G. Y., a man, aged twenty-eight, entered the hospital complaining of severe pain and swelling in the left leg and thigh.

Examination.—On inspection the leg showed some general swelling while the area over the course of the great saphenous vein showed considerable swelling associated with a fiery redness that was hot to touch and painful to palpation. This extended from the lower third of the lower leg to the groin. The remainder of the physical examination showed no other abnormalities except severe oral sepsis.

Course in the Hospital.—The leg was elevated on pillows with icebags overlaying the swollen great saphenous vein. Morphine was used for pain. The great saphenous vein was ligated under local anesthesia and thromboplastin treatment was started. Within twenty-four hours the patient was more comfortable and required no further injections of morphine. The redness began to fade and change to a brownish tint. In forty-eight hours, the swelling over the great saphenous vein had receded to a brawny induration which was only slightly tender to touch. The patient became ambulatory thereafter and was transferred to out-patient care on the fifth day.

Outpatient Care:

The patient developed a painful abscessed tooth during the third week. Following its extraction a mild recurrence of the pain and swelling in the left leg was noted which subsided in less than four days without change in the thromboplastin treatment. Although a small amount of swelling persisted about the left ankle, the patient's request to return to work was granted at the end of the fourth week. During the fifth week he developed an annoying cough with blood-tinged sputum, which lasted for five days and spontaneously subsided. No further indications of pulmonary embolism developed and thromboplastin treatment was discontinued on the fifty-third day. He has remained well and at work since.

Comment

The information leading to the therapeutic application of thromboplastin in acute thrombophlebitis was accumulated during the progress of other investigations, portions of which concern the factors which influenced the plasma fibrinogen level to rise or fall.[6] The results of those investigations could be summarized by stating that factors which weakened the thromboplastin mechanism caused the plasma fibrinogen level to rise, whereas factors which activated, supported or potentiated the weakened thromboplastin mechanism caused the hyperfibrinogenemia to recede. It was concluded that the plasma fibrinogen level was regulated in the coagulation system by the physiologic processes of homeostasis and maintained inversely proportional to the physiologic activity in the thromboplastin mechanism. Protamine sulfate, heparin, heparin-like substances and the coumarin compounds are all known to inactivate or block the action of thromboplastin. The administration of all these substances produced a rise in the plasma fibrinogen.

On the other hand, procedures designed to activate, potentiate and support the physiologic activity of the thromboplastin mechanism were found to produce a drop in the fibrinogen level. The physiologic effects of homologous thromboplastin administration were foremost in this respect.

The accumulation of information connecting the plasma fibrinogen level to the activity of the thromboplastin mechanism brought a different outlook on the problem of intravascular clotting. Since the defect in the coagulation system in acute thrombophlebitis was characterized by an increase in the plasma fibrinogen, the cause of the increase, according to our knowledge of homeostasis, was indicated to be an insufficiency in the physiologic function of thromboplastin.

The normal potential coagulability of the blood is created by the presence of a normal amount of fibrinogen, since blood without fibrinogen will not

clot. It is reasonable, therefore, that an excess of fibrinogen creates a state of potential hypercoagualability which conditions the blood for intravascular clotting when trauma, stasis and other factors set the stage. Measures designed to reduce the potential hypercoagulability by reducing the amount of fibrinogen in the circulation forms a rational basis for therapy. Direct reduction of the plasma fibrinogen level by the intravenous injection of thromboplastin is potentially dangerous because it brings about the conversion of the fibrinogen to fibrin which may further enhance the thrombosis. However, the indirect administration of thromboplastin by the oral route appears without danger, because it reduces the hyperfibrinogenemia by way of correcting the imbalance in the homeostatic mechanism. The formation of excess fibrinogen is thereby inhibited physiologically.

The physiologic results of the therapeutic application of thromboplastin in acute thrombophlebitis actually exceeded the original expectations. Thromboplastin therapy not only reduced the hyperfibrinogenemia as estimated, but it also reduced the intrinsic inflammatory process in the vein wall. The latter was accomplished much more rapidly than the former. After observing the physiologic effects of thromboplastin therapy in these twenty-three patients with acute thrombophlebitis, the conclusion seems warranted that not only the hyperfibrinogenemia but also the acute phlebitis was caused by a thromboplastin deficiency.

Indications of the specificity of thromboplastin treatment were observed in several ways. They were manifested by a prompt clinical improvement in all cases, which was associated with visual evidences of healing of the inflammatory process as well as a significant drop in the plasma fibrinogen. In addition, because of the physiologic nature of the treatment, contraindications and untoward side effects were not found. Also, there were no withdrawal symptoms or immediate recurrences when the treatment was stopped.

On the basis of the present information the routine preoperative determination of the plasma fibrinogen level seems indicated as a screening measure to find the individuals most susceptible to thrombosis and embolism after surgery. Patients showing an increase in the plasma fibrinogen are being given oral thromboplastin to reduce the potential hypercoagulability of the blood as a prophylactic measure. The results will form the basis of a future report.

Summary

Each of a series of twenty-three patients with acute thrombophlebitis had a significant increase in plasma fibrinogen which indicated a serious imbalance in the homeostasis of the coagulation mechanism. Successful thromboplastin therapy to correct the defect was based upon the physiology of homeostasis, since the physiologic imbalance appeared to be caused by an insufficiency of thromboplastin.

The specificity of thromboplastin treatment was manifested by a drop in hyperfibrinogenemia, prompt general clinical improvement, immediate appearance of signs of healing in the acute inflammatory process in and about the vein wall and the absence of any untoward side effects. There were no contraindications found, nor were there any rebound symptoms or immediate recurrences when the treatment was stopped.

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13700 Woodward

Early diagnoses of pelvic malignancies make mandatory bi-manual examination of the pelvic organs and biopsy of any abnormal cervical lesion.

* * *

Most complications of pregnancy are greatly increased as a result of myomata being present in the uterus.

Far too frequently the urologist can be condemned for not insisting on biopsy of the prostate.

* * *

Since there are no early symptoms, it is obvious that only by education of physicians in general can one hope to find more operable prostatic cancer.

New Concepts of the Pathogenesis of Hypertension

By Irfan M. Gurevin, M.D.
Detroit, Michigan

ELEVATION of arterial blood pressure has been recognized since Von Basch found a simple method of measuring blood pressure in human beings fifty years ago. However, several observers prior to this discovery described findings in autopsy materials attributed to hypertension. For example Bright in 1836 published his view that some large heavy hearts were found in his patients with renal disease. Forty years after Bright's observations, Mahomed in England described hypertrophy of the heart in patients with the "pre-albuminuric stage of Bright's disease." He thought that the hypertrophy of the heart was due to the increase of blood pressure in the earlier stage of Bright's disease.

It is generally accepted that hypertension is a sign of disease, as is fever, leukocytosis or headache. They are signs of disease and do not constitute a specific disease entity.

There are two main groups of hypertension: hypertension of known etiology and hypertension of unknown etiology.

The first group is subdivided as follows: (1) renal hypertension, (2) cerebral or neurogenic hypertension, (3) endocrinal hypertension, and (4) cardiovascular hypertension.

Renal Hypertension

Experimentally the first demonstration that hypertension could be developed by interference of blood flow through the kidneys was done by Bell and Pederson. These authors demonstrated in 1930 the development of hypertension in a rabbit by occlusion of the renal vein and the application of a membrane around the kidney to prevent the development of a collateral circulation. This was the first clear demonstration that interference of blood supply to the kidney might result in hypertension. Chanutin and Ferris in 1932 obtained experimentally hypertension in rats after subtotal nephrectomy. In 1934 Goldblatt and his co-workers produced chronic hypertension in the dog by the partial compression of the renal artery with a metal clamp. This hypertension is not necessarily accompanied by renal excretory failure. The hypertension was stable and associated with normal heart rate and peripheral vasoconstriction.

Three years after Goldblatt's observation, Houssay and Fasciola in 1937 demonstrated that the ischemic kidney liberates a vasoconstrictor substance into the blood. Two years later Braun-Menandez and his associates in 1939-1940 isolated a substance from the renal venous blood of ischemic kidneys. This substance was thought responsible for elevation of blood pressure and it was called "hypertensin." They also found that hypertensin could be formed by the interaction of renin* and human plasma. Page's studies in 1939 also showed plasma is necessary for the activation of renin and he named the substance in plasma "renin activator" or "hypertensinogen." Hypertensin or angiotonin is a polypeptide. Its molecular weight is 2700. It is thermolabile and dialyzable. Its mother substances, renin and hypertensinogen, are thermolabile and non-dialyzable. Renin is an enzyme which catalyzes the reaction of the production of hypertensin from hypertensinogen. Hypertensin is destroyed or inactivated presumably by the proteolytic action of the enzymes present in the blood and extracts of the organs. These enzymes or groups of enzymes are termed hypertensinase. Hypertensin is not specific for mammal animals including human beings.

Leloir in 1940 devised a method for estimation of renin in the blood. By this method an increased renin level in the blood was found in the initial phase of renal hypertension, shock, acute hemorrhagic nephritis and in the acute stages of acute glomerulonephritis. However, in animals with a chronic stage of renal hypertension, with or without insufficiency, as well as in patients with essential or malignant hypertension, renin could not be found by the method of Leloir and his

*Renin is a protein found in the extract of the renal cortex by Tigersted and Von Bergman in 1898.

associates. Braun-Menandez felt that Leloir's method for the determination of renin in the blood was not sensitive enough to detect it, but Fasciolo and Taquini improved Leloir's method 200 times in sensitivity. By this new method a small amount of renin was found in rats and in men with normal blood pressure, but no increase in renin concentration could be detected in the blood of animals or human beings with chronic hypertension. Renin is mainly contained in portion of the cortex of the kidney which lies below the renal capsule. The distal convoluted tubules are found here. According to the studies of Friedman and Kaplan in 1942 and 1943, renin is formed in these tubules. The juxtaglomerular apparatus does not seem necessary for renin formation. The renin content of the kidney is strikingly similar in both kidneys and in the same kidney in different regions. A partial anoxemia of the kidney causes a 100 per cent increase in the renin content of the kidney in 15 to 30 minutes. By paper chromatographic analysis Edman found a variety of amino acids in hydrolysed hypertensin solutions: histidine 28 per cent, alanine 3.8 per cent, pyroline 5 per cent, tyrosine 2 per cent, aspartic acid 4.5 per cent, and glutamic acid 5 per cent.**

In clinical medicine, hypertention is seen in cases with renal vascular abnormality. Obstruction of the renal artery or vein and obstructive kidney disease are examples. Hypertensin is not the only hypertensive substance in the blood. In 1942 Crexattos made an important observation that when pepsin is allowed to act on hypertensinogen a pressor substance is formed. This substance is different from hypertensin. Crexattos called it pepsitensin. Red cell hypertensinase ferments rapidly, destroys hypertensin but has no effect on pepsitensin. Braun-Menandez and his associates demonstrated that extracts of the kidney and other tissues contain a substance which destroys hypertensin. They called it hypertensinase. The extract from muscle, liver, and the intestinal mucosa showed a maximum activity between pH 7 and pH 8; however the kidney hypertensinase is effective at pH 4. The reaction between hypertensin and hypertensinase is enzymatic. Intestinal mucosa has the greatest concentration of hypertensinase (1200 to 1600 u.), liver is second (80 u.) and plasma, the least (1 - 4 u.). Red cells also contain a large amount of hypertensinase. Crexattos, Mauriquez and Valuezuela observed in 1942 that some enzymes from yeast inactivate hypertensin. Wheat bran is also a good source of hypertensinase. Richardson and Goldblatt used such extracts and were able to reduce the pressor response to hypertensin.

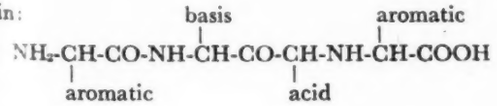
About four to five years ago Zweifach and Shorr discovered a substance in the anoxic kidney. They named it VEM (vaso excitor material). VEM is formed in the cortical portion of the kidney. The VEM level in renal vein was found increased in animals when the renal artery was clamped. VEM potentiates the vasoconstrictor action of epinephrine on the peripheral vessels. VEM is increased in the blood in the beginning of experimental hypertension in the dog; but in the chronic stage it is absent. Shorr and his coworkers have also been able to separate another substance which they called VDM (vasodepressor material) from the blood of animals with experimental hypertension. This material is an iron containing protein called Ferritin. This substance is formed in the liver. VDM neutralizes the effect of VEM in the peripheral blood. It was found increased in hepatic venous blood in animals with experimental hypertension. Other new hypertensive substances were isolated from the blood of hypertensive patients. Stock and Schroeder accumulated evidence of the existence in the blood of two of twenty-three patients with hypertension a substance which causes a prolonged increase of arterial pressure when injected into rats. This substance is not hypertensin or VEM. It consists of amino-like material. Schoeder and Olsen have called this material Phrentasin.† It is a nonprotein amino-like material which is soluble in water, alcohol, and chloroform, but not in purified benzine. It is conjugated with creatinine, sulfuric acid, and amide.

The exact mechanism of renal hypertension still is not understood.

Cerebral or Neurogenic Hypertension

It was observed that electrical stimulation of the anterior lobe of the brain of cats causes increased blood pressure and decreased renal flow. Electrical stimulation of the hypothalamus of cats

**Renin:



†Phrentasin NH_2-CH_2-CO-CH_2-R

also produces hypertension experimentally in animals. The removal of the pressor regulating system, for example, by removal of aortic and carotid sinus nerves also produces hypertension. This type of hypertension is accompanied by tachycardia and increased cardiac output. A vasoconstrictor substance has also been found in the blood of rabbits and dogs made hypertensive by section of the pressor receptor nerves. Braun-Menandez thinks these substances could be epinephrine or its derivatives. Dixon and Heller in 1932 produced hypertension in animals after the injection of a suspension of Kaolin into the intracisternal space. Hypertension was also produced by the production of cerebral ischemia by ligation of carotid, vertebral, and spinal arteries. A psychogenic hypertension was obtained in rats by Farris in 1945 and by Yaekel in 1948 by exposing the rats to daily explosives. However, there is much evidence that the kidney plays a very important role in neurogenic hypertension. Grimson in 1939 demonstrated that the blood pressure is not increased in dogs by excitation of regulator nerves if the kidneys are denervated. Braun and Samet in 1934 claimed that denervation of the kidney prevents hypertension in animals due to intracisternal Kaolin injection. Trueta and his co-workers in 1947 demonstrated that stimulation of renal nerves produces a short circuit in the blood circulation and causes ischemia of the renal cortex. Since the recent work of Introzzi and Fasciolo in 1949 we know the regulation of the nervous system of renal circulation can cause elevation of blood pressure by formation of renin. One can find clinical hypertension from increased intracranial pressure as a consequence of trauma, tumor, or inflammation. It may result also from lesions of the diencephalon and brain stem. The occurrence of hypertension in poliomyelitis and in trigeminal neuralgia may also be related to central nervous system lesions.

Endocrinal Hypertension

Kuhlman in 1939 demonstrated the hypertensive effect of desoxycorticosterone in animals. He has injected 25 mg. of desoxycorticosterone daily into dogs for seventy days and observed an increase of blood pressure, 45 mm. in systolic and 25 mm. in diastolic. In the same year Loeb observed the rise of blood pressure in patients with Addison's disease after giving desoxycorticosterone. Grollman also reported in 1940 the hypertensive effect of desoxycorticosterone on rats. Selye in 1942 showed that desoxycorticosterone causes nephrosclerosis and generalized tissue edema accompanied by cardiac hypertrophy in the chick. In 1943 Selye and Stone observed that high doses of sodium chloride added to drinking water of chicks in combination with the administration of desoxycorticosterone provoked nephrosclerotic changes in the kidney and increase of blood pressure. Sapirstein produced in 1950 hypertension and renal hypertrophy in rats after administering for six weeks a two per cent sodium chloride solution as a drinking fluid. A form of clinical hypertension can accompany hyperplasia of the adrenal cortex or basophilic adenoma of the hypophysis of certain types of adrenocortical tumors. In such cases one finds increased elimination of corticoids in the urine. Hypertension can be improved by the removal of excess cortical tissue. Hypertension in Cushing's syndrome or Cushing's disease belongs in this group.

Cardiovascular Hypertension

Hypertension may occur as a result of coarctation of the aorta, arteriosclerosis, and less commonly in congestive heart failure.

Hypertension of Unknown Etiology

In 1894 Mahomet described enlargement and hypertrophy of the heart in patients without albuminuria. In post mortem examination he could not find Bright's disease. He concluded that those patients had hypertension without Bright's disease and he called this the "pre-albuminuric stage of Bright's disease." After the introduction of the sphygmomanometer into clinical medicine, Volhard and Fahr were especially interested in the study of hypertensive patients with no known renal or endocrine pathology. These authors called this type of hypertension "essential hypertension." Another name introduced by E. Frank was "essential hypertonia."

In the category of essential hypertension one includes several types of hypertension of unknown etiology. Adrenal or other endocrine pathology could not be found in essential hypertension. Arteriosclerotic changes in renal vessels have been described as the cause of hypertension. However, many investigators have found none or slight vascular changes in the renal vessels. Bell and Clawson found no arteriosclerotic changes

in the renal vessels in 10 per cent of their cases of essential hypertension. Wallgren had eight cases of essential hypertension in which the renal arterioles showed no changes. In one of Kauffman's cases with normal kidneys and no arteriosclerosis, the patient was known to have had hypertension for 12 years. The anatomical changes in the renal vessels are not enough to explain the elevation of blood pressure in essential hypertension. Recent studies showed no alteration in the hemodynamics of essential hypertension. For example, in uncomplicated essential hypertension the cardiac output, the blood volume, and viscosity of the blood is normal. In early hypertension the elasticity of the arteries is more or less within normal limits for the particular age group of the patient. The factor responsible for augmented peripheral resistance of the systemic vascular tree is the narrowing of the arterioles. In early essential hypertension the arteriolar narrowing results from generalized arteriolar vasoconstriction; but as the hypertensive process continues, the augmented peripheral resistance becomes partially due to progressive arteriosclerosis which develops in the kidneys, spleen, liver, and brain in decreasing order of intensity.

What is the cause of peripheral vascular vasoconstriction in essential hypertension? Can some hypertensive substances in the blood be responsible for peripheral resistance?

Very detailed studies could not prove that renin or the hypertensin pressor system is responsible for elevation of blood pressure in essential hypertension. Shorr and his associates found equal increases of VEM and VDM in the blood of the patients with essential hypertension. By catherterization of the renal and hepatic veins Shorr and Zweifach could demonstrate extreme increase of VEM in the renal vein and VDM in the hepatic vein. Shorr's studies showed some abnormality in VEM and VDM mechanism in essential hypertension. Shorr believes this abnormality plays a part in the pathogenesis of essential hypertension, because the activity of VEM in peripheral blood of patients with essential hypertension is slightly higher than normal people. Otherwise VEM is not a pressor substance itself. It increases vasomotor activities of epinephrine; and there is no increasing of the pressor effect of epinephrine in essential hypertension. Detailed studies showed neither epinephrine nor pitressin play any role in essential hypertension. Recently Schroeder and his co-workers have found a vasomotor and pressor substance in the blood in renal hypertensive patients. They termed it phrentasin. However, those hypertensive materials have not been found in the blood of patients with essential hypertension.

Finally, one can say that the responsible etiological factors for essential hypertension seem to be entirely different and occult at present. However, diet, race, heredity, environment, stress, weight, and body constitution are important modifying factors in essential hypertension.

Race Factor.—Essential hypertension appears to be less common in those people in whom the normal blood pressure average is low. For example, Harris and others found that essential hypertension is rare among the Chinese and other Oriental people who normally have lower blood pressure. Smirk observed that both normal blood pressure and the incidence of essential hypertension are low among the inhabitants of the Philippines, Puerto Rico and the poorer classes in India. The incidence of hypertension is low in people living in primitive conditions. Nye found hypertension completely absent in the Australian jungles. Dannison concluded that hypertension seldom occurs in the primitive state in Kenya colony; in contrast essential hypertension is very common in Negroes living in large cities in the United States. The incidence of hypertension is also high among civilized Negroes in South Africa.

Hereditary Factor.—Two hundred years ago Morgagni knew that there is a marked predisposition in certain families to cerebral hemorrhage. In recent years statistical and individual studies showed that there is definite evidence of a hereditary factor in essential hypertension. For example, Rosenbloom observed a family in which both parents died from cerebral hemorrhage. Eight of their ten children have hypertension. Children of two hypertensive parents have a 50 per cent chance of developing essential hypertension in later life.

Constitutional Factor.—Essential hypertension especially is accompanied by obesity or diabetes. In some countries gout is frequently found in hypertensive patients.

It is true that the pathogenesis of essential hypertension is still obscure.

(Continued on Page 574)

The "Gamblegram" as an Aid to Electrolyte Study

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THE development of rapid, precise analytical methods for plasma electrolytes has increased the frequency of their determination. Harper Hospital Chemistry Laboratory has approximately tripled the daily sodium and potassium determinations during the past two years. Proper evaluation of the tests depends upon an understanding of the fundamental principles of electrolyte balance. There are no simple rules to follow. Electrolyte imbalance is intimately associated with other pathological processes; therefore, it should be considered only with careful attention to the entire clinical picture.

The basic "reference point" for electrolyte study in our laboratory is the "Gamblegram." This set of determinations furnishes the complete information necessary to construct a Gamble acid-base balance chart of blood plasma (Fig. 1). Diagrammatic visualization of the Gamblegram gives the clearest picture of the pathologic physiology involved. The Gamblegram includes the determination of total base, sodium, potassium, carbon-dioxide content, chloride, total proteins, and pH. A separate laboratory package consists of sodium, potassium, carbon-dioxide content, and chloride, and is designed for pediatric use.

The term "milliequivalents" occasionally causes confusion. It is really the only definitive method of expressing the concentrations of body fluid electrolytes. Other units, as milligrams per cent and volumes per cent are unrelated to each other, and comparison between the ions is not possible with these units. The value for milliequivalents per liter is obtained by dividing milligrams per liter by atomic weight and multiplying by valency. A milliequivalent of any cation will combine with one milliequivalent of any anion. Reference to Figure 1 shows 142 mEq. of Na^+ and 103 mEq. of Cl^-. The sodium may combine with 103 mEq. of Cl^-, and 39 mEq. remain, which may combine with bicarbonate ion. One equivalent of a univalent substance exerts a pressure of 1 osmol (unit of osmotic pressure). One equivalent of a univalent substance produces an osmotic pressure of 1 osmol, divalent ions require 2 equivalents to produce 1 osmol. Thus a substance such as NaCl produces a greater osmotic pressure than a like quantity of protein because of the larger number of particles.

This discussion will consider the seven determinations in the Gamblegram.

Total Base

The total base of plasma consists of the sum of the cations shown in Figure 1. It is determined by electrodialysis of blood serum or plasma through a cellophane membrane into a boric acid receiver. The basic solution thus obtained is titrated with dilute HCl. Since the sum of the cations equals the sum of the anions expressed in terms of equivalents, the concentration of total base also equals the concentration of total anions. This test represents the total concentration of plasma electrolytes without reference to the relative concentrations of each. However, the relative amounts of each ion may be calculated precisely only by reference to the total anions or cations present.

The degree of dehydration of the patient should be considered in evaluation of any electrolyte data. In dehydration the electrolytes may appear to increase, whereas the total body stores have actually diminished. Total electrolyte concentration is maintained except in severe acidosis. In cases of acidosis or alkalosis with normal kidney function the total electrolyte concentration will be maintained by the kidney even though there are severe abnormalities in acid-base balance. In the absence of sufficient electrolyte, the kidneys cannot excrete the excess chloride or bicarbonate to overcome the existing acidosis or alkalosis.

Since 91 per cent of the total base consists of sodium ions, the sodium concentration may be used for a rough approximation of total base.

Sodium

The normal concentration of serum sodium ranges from 135 to 153 mEq./L., 98 per cent of the observations falling within this range.[2] Sodium is the primary determinant of tonicity in extra-

cellular fluid. In diabetic ketosis the increased blood sugar may add significantly to the osmolarity of extracellular fluid, and serum sodium is consequently reduced. Studies on experimental salt depletion[3] have shown severe depletion is required before reduced levels of sodium are found. Clinical salt depletion therefore is primarily due to body losses rather than dietary depletion. Losses from the gastrointestinal tract are most common; excess sweating and urine sodium loss may also contribute. Renal failure, adrenal insufficiency, use of diuretics, chronic uremia, and salt-losing nephritis all cause urine sodium loss. Hyponatremia may also be induced by too vigorous sodium depletion during edema, especially in congestive heart failure.[4]

All cases of sodium loss must be evaluated with reference to degree of hydration, in which the primary abnormality is water retention. In these conditions, the sodium will revert to normal when the primary condition is brought under control. An increase of sodium concentration is less common. High serum sodium with low urine sodium has been found after head injury,[5] extracerebral neoplasms,[6] and other conditions involving the depression of consciousness.[7]

If the serum sodium determination is not readily obtainable, it may be roughly estimated by adding 10 to the sum of chloride and bicarbonate ion values expressed in milliequivalents.[8] The

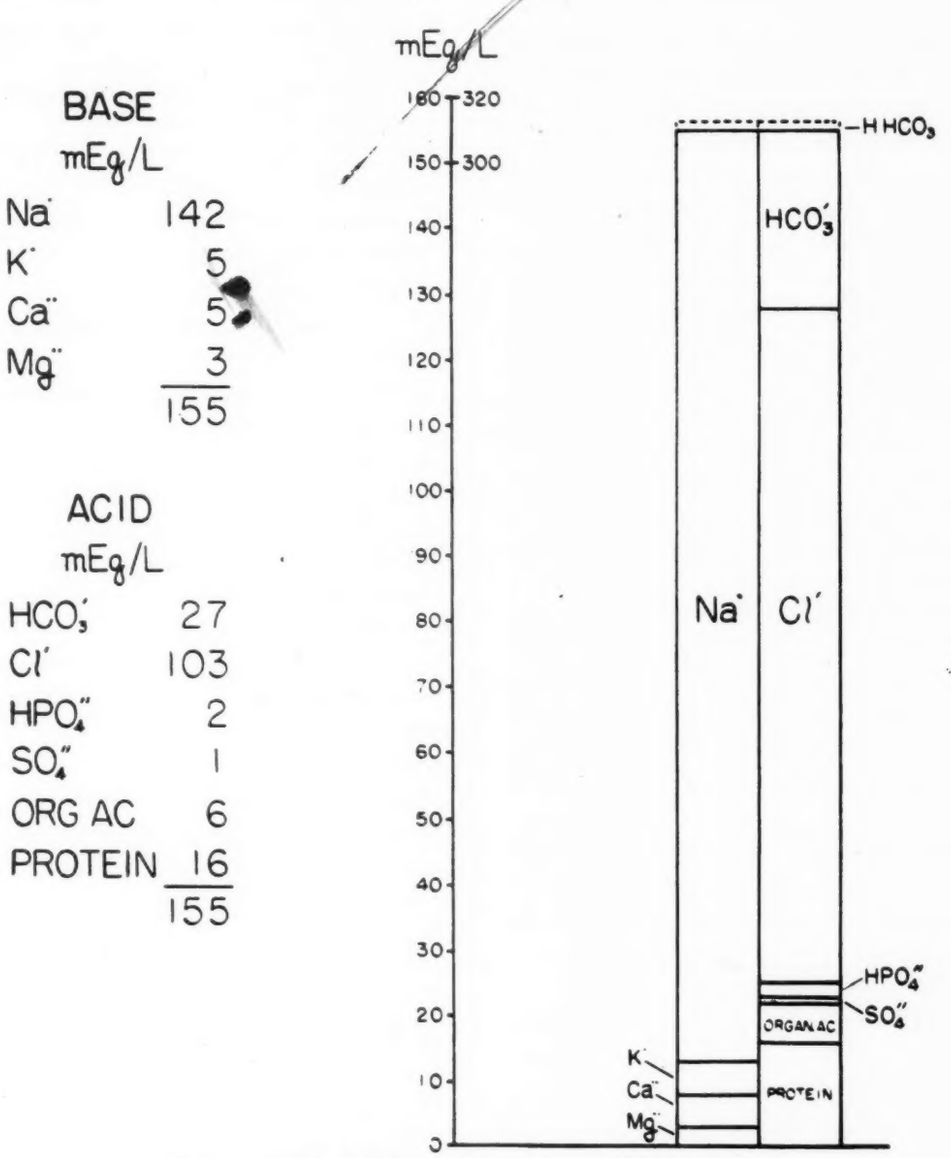

Fig. 1. Gamble acid-base balance chart of blood plasma.[1]

figure 10 must be increased in cases of diabetes (because of ketone bodies) and in nephritis (phosphate retention).

Potassium

The normal concentration of serum potassium varies from 3.5 to 5.6 mEq./L[2]. Normal potassium values vary more than sodium since the homeostatic mechanism is less efficient. In dietary potassium depletion, serum potassium may drop to low levels, but seldom less than 3.0 mEq./L. The comparatively large cellular reserves prevent further losses. Uncomplicated potassium depletion may be caused by sodium retention increasing the extracellular sodium, and with the development of extracellular alkalosis.[9] The alkalosis appears independent of any renal influence and is secondary to passage of Na^+ and H^- ions from extracellular to the intracellular compartment. The increase of serum bicarbonate and pH in potassium deficiency therefore indicates no gain of alkali or loss of acid from the body.

Low potassium levels usually, but not always, indicate potassium depletion. Depletion may occur without significant alterations in the serum potassium concentration, such as in diabetic ketosis, and abnormal loss from the gastrointestinal tract. If the sodium depletion in these cases is corrected, low levels of potassium may be found.

Hypokalemia, as in the case of hyponatremia, is most often found when the ion is lost in gastrointestinal secretions or in the urine. Vomiting will cause greater loss of potassium, since gastric juice has a high potassium content.

The kidney does not conserve potassium as well as sodium. Higher potassium levels are less common since the kidney efficiently excretes this ion. Renal failure may produce a definite hyperkalemia. High serum potassium may also be found in Addisonian crises.

Calcium, Magnesium, and Phosphate

These ions are not determined in the Gamblegram, but Ca and Mg may be estimated by subtracting the sum of sodium and potassium from the total base. Individual analysis of calcium and phosphate is often used for a prognosis in renal failure. The hypocalcemia found in most of these cases is dependent upon hyperphosphatemia. Phosphate retention contributes to some extent to the acidosis of renal failure. Little clinical significance may be attached to serum magnesium values at the present time.

TABLE I. ACIDOSIS AND ALKALOSIS[8]

	pH	CO_2	Condition
Acidosis			
Metabolic	Low	Low	Retention of acid or loss of base
Respiratory	Low	High	Retention of CO_2
Alkalosis			
Metabolic	High	High	Retention of base or loss of acid
Respiratory	High	Low	Loss of CO_2

Carbon Dioxide and pH

The carbon dioxide content of serum as measured in the Van Slyke manometric apparatus includes dissolved carbon dioxide gas, carbonic acid, and bicarbonate ion; the normal carbon dioxide content of plasma is 25 to 32 mEq./L. If pH is normal, the major part of the total carbon dioxide is bicarbonate, thus total carbon dioxide provides a practical estimate of the bicarbonate present. Carbon dioxide content rather than combining-power is measured in this laboratory. When content is determined, the blood is drawn under oil without exposure to air and the normal equilibrium of the carbon dioxide system is preserved. The re-equilibrating necessary when carbon dioxide combining-power is measured leads to various technical errors. If the alveolar carbon dioxide is the same in both the patient and technician performing the equilibration, the carbon dioxide content and combining-power will furnish the same value. In respiratory alkalosis and acidosis, carbon dioxide combining-power may give false results.

The carbonic acid may be differentiated from the bicarbonate by use of the determined pH and the Henderson-Hasselbalch equation. Table I demonstrates how pH and carbon dioxide vary in metabolic and respiratory acidosis and alkalosis.

Alkalosis and acidosis are usually defined in terms of alteration of the bicarbonate ion, following the precedence of Van Slyke and Cullen. In alkalosis, bicarbonate increases and chloride decreases; in acidosis, the reverse occurs. In cases of severe acidosis, large quantities of acetoacetic acid and beta-hydroxybutyric acid are present in the blood, and the anions of these acids plus chloride ions displace part of the bicarbonate ions.

Chloride

The normal concentration of serum chloride varies from 98 to 106 mEq./L. Alterations occur through loss of chloride in stomach contents, retention or loss of carbon dioxide, ketosis, kidney disorders, and a potassium deficiency alkalosis. Alteration in the concentration of either chloride or bicarbonate is associated with a reciprocal change in the other factor. When chloride is lost in gastric contents, there is a compensatory increase in bicarbonate. Primary carbon dioxide retention decreases chloride levels, while a carbon dioxide deficit (as in hyperventilation) increases the chloride. Conditions which raise the level of other serum acids, such as ketosis or renal insufficiency (phosphate retention) may decrease serum chloride as well as bicarbonates. Chloride is increased in nephritis, or nephrosis with ammonium chloride therapy.

Changes in the carbon dioxide concentration of the serum leads to a shift of chloride from plasma to red cells, or in the opposite direction. Therefore blood drawn for chloride determinations should be collected under oil to prevent escape of carbon dioxide. This would cause an increased serum chloride content. Furthermore, serum should be rapidly separated from the cells to avoid a shift from serum to red cells incident to the formation of acid, which occurs in the blood upon standing.

Total Proteins

Serum protein ions contribute to the acidic portion of the electrolyte balance. Because they are in solution at pH 7.4, or on the alkaline side of their isoelectric points, they exist to a certain extent as alkaline salts. Their chief function is the maintenance of normal blood volume and maintenance of normal tissue water content. Depletion of plasma proteins leads to edema, thereby affecting the entire electrolyte concentration. Palpable edema usually develops when the concentration of serum protein falls below 5 grams per cent.

A decrease in plasma protein of 1 gram per cent results in a significant loss of plasma volume. Blood plasma and interstitial fluid differ primarily in the concentration of non-diffusible protein. The total electrolyte equivalents of plasma is greater than that of interstitial fluid by the base equivalents of plasma protein. Fluid moves from the arteries into the interstitial space by heart action. The return flow is provided by the unopposed osmotic differential due to the plasma proteins. This pressure gradient exists because the same quantity of base ion will exert more osmotic pressure when combined with a univalent ion (i.e., Cl^- or HCO_3^-) than it will when combined with a polyvalent protein ion.

The concentrations of plasma protein expressed in grams per hundred milliliters may be converted to milliequivalents per liter by use of the following equation:[10]

$$\text{mEq./L.} = 0.104\ (\text{gm. prot./Liter})\ (\text{pH} - 5.08)$$

In this manner the proteins may be placed in the Gamblegram as one of the anions. They are of interest not only as anions in the electrolyte picture but also as a measure of the water concentration affecting the entire balance.

Summary

Each of the seven determinations which constitute the Gamblegram is discussed. There are no simple rules to follow in interpreting electrolyte balance studies. Each determination must be considered individually, and compared with the total pattern. Construction of a Gamble chart is the simplest method of viewing the entire electrolyte pattern, showing most clearly the interrelationships involved.

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The Electrocardiogram in Periodic Health Appraisal

By John G. Bielawski, M.D.
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A TWELVE lead electrocardiogram was taken as a routine part of the examination of a group of over 4,000 male employes of a Detroit automobile manufacturing plant. These men were subjected to examination for a variety of reasons—they were applying for work, were returning to work after illness, or were scheduled for a periodic health appraisal examination. Thus they can be considered as representative of ambulatory patients as seen in private practice.

The age distribution is shown in Table I. "New employes" refers to those undergoing a preplacement examination. "Hourly" rated refers to skilled and unskilled factory workers. "Supervisory" refers to the white collar class of foremen, clerical workers and executives.

This review begins at age forty because of the findings of a preliminary study conducted on a group of several hundred men mostly under age forty. Abnormal electrocardiogram findings were so rare under age forty that an electrocardiogram was not felt worth the time and expense involved unless there was some clinical indication to order the procedure. The group consists of males only, because few women are employed in heavy manufacturing.

A short history form was filled out by all those examined. Few clues as to the presence of cardiovascular disease were obtained, but since this was in an industrial group, this finding was expected. The miniature chest x-ray also found very few cases of previously unknown cardiac hypertrophy. Physical examination of the cardiovascular system disclosed mainly a significant amount of hypertension. A few cases of congenital and rheumatic heart disease were also discovered, although most of these were already known to the patients. A number of these were young men applying for work as common laborers. Such cases are not accepted for employment as common laborers by most heavy manufacturing plants. This emphasizes the need for completion of as much education as a child with heart disease can possibly absorb, and also draws attention to realistic vocational goals, so that these young people may arrive on the labor market with skill to sell. Cardiac murmurs are no deterrent to employment when they are possessed by individuals whose skill is in demand.

TABLE I. TOTAL RECORDS

Age	40-49	50-59	60-69	70-79	Total
New employes	1,452	149	5	—	2,109
Hourly rated	963	698	440	8	1,606
Supervisory	136	116	39	—	291
Total	2,551	963	484	8	4,006

Blood pressure determinations were made by nurses. This resulted in lower readings than had they been made by physicians. This was repeatedly verified in individual cases. Hypertension was defined for the purposes of this study as a reading in excess of 160/100. Hypertension is a very common finding in this group and should not of itself be considered a deterrent to employment or to continuation of work unless serious complications occur.

A total of 398 abnormalities were found. These were found in 360 individuals, since a number showed several abnormalities. Most of those with left ventricular hypertrophy (LVH) were hypertensive, thus classifying them further as having hypertensive heart disease. No correlation with the height of the blood pressure and the pattern of LVH could be made. The five examples of right ventricular hypertrophy (RVH) were all due to cor pulmonale in persons having bronchial asthma for many years. Nonspecific left ventricular damage (LV damage) was found mostly in men who were hypertensive. In three instances a history of substernal distress on extreme exertion such as shoveling snow in very cold weather was obtained after the examination. These men had not been aware of the importance of their symptoms. The discovery that they had angina

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TABLE II. HYPERTENSION*

Age	40-49	50-59	60-69	70+
New employes	73(1452)	15(149)	1(5)	—
Per cent	5%	10%	20%	
Hourly rated	135(963)	165(698)	120(440)	1(8)
Per cent	14%	24%	27%	13%
Supervisory	17(136)	14(116)	7(39)	—
Per cent	13%	12%	18%	

*The figures in brackets are the total examined in each category. The figure preceding the bracket is the number with hypertension in each group.

TABLE III. TYPES OF EKG ABNORMALITY

	New Employes	Hourly Rated	Super-visory	Total
LVH	9	98	13	120
RVH	1	4	—	5
LV damage	20	84	14	128
Infarcts: Ant.	3	19	4	26
Post	5	22	7	34
RBBB	9	35	4	48
LBBB	2	6	1	9
Arrhythmias	5	23	—	28
Total				398

TABLE IV. ABNORMAL EKG'S

Age	40-49	50-59	60-69	70-79	Total
New employes	36(1452)	11(149)	2(5)	—	49(2109)
Per cent	2.5%	7%	40%	—	2%
Hourly rated	68(963)	110(698)	94(440)	1(8)	272(1606)
Per cent	7.8%	16%	21%	—	17%
Supervisory	13(136)	12(116)	14(39)	—	39(291)
Per cent	9.5%	10%	36%	—	13%
Total	117(2551)	133(963)	110(484)	1(8)	360(4006)
Per cent	4.5%	13.8%	23%		9%

TABLE V. PRIOR KNOWLEDGE OF HEART DISEASE (IN THOSE WITH ABNORMAL EKG)

	New	Hourly Rated	Supervision	Total
Yes	2	112	20	134
No	47	160	19	227

pectoris may prolong their lives by awareness of the need to avoid the extreme exertion which would produce their pain. The remainder in this group were asymptomatic, and had no other abnormal findings. These may be examples of preclinical coronary artery disease. These and all others with abnormal electrocardiogram findings were advised to visit their personal physician for further study and treatment. They were especially urged to seek medical care when obesity or hypertension were found in the hope that the onset of disability could be prevented or postponed by prompt treatment.

A total of sixty typical myocardial infarcts were found. All but a few were known to have had a coronary attack. Two were not known to the patient and are examples of silent myocardial infarction. One was in a patient who, several years before examination, had been off work for only three days due to a "chest cold," and had no medical attention then. He was asymptomatic following this episode. The remainder were in men applying for work. Their uniform history of lack of any chest pain was not accepted, since their natural fear of being denied employment on this basis is easy to understand.

Right bundle branch block (RBBB) was a frequent abnormal finding, and was seen in many asymptomatic men in their forties. This finding was interpreted as being significant only if some other evidence of heart disease was also found. In the absence of other cardiovascular abnormality, these men were informed that they had an unusual electrical conduction pathway, but were not classified as having heart disease. Left bundle branch block (LBBB) occurred more infrequently. This was considered as a definitely abnormal finding.

Arrhythmias were not unusual. Only significant arrhythmias such as heart block and auricular fibrillation were tabulated. Extra systoles were so frequently found that no record was kept of their incidence.

The age incidence of electrocardiographic abnormality is shown in Table IV. These increased with the years. All groups were afflicted.

Table V is self-explanatory. Almost twice as many of those with an abnormality of the electrocardiogram did not know of any defect as compared with those who knew that they had a cardiac disorder. For all normals a base line was made available for comparison, when and if clinical heart disease should become suspect at a future time. After age forty the electrocardiogram is an important part of the periodic health appraisal.

Tricks Against Old Age

By Paul deKruif
Holland, Michigan

IT'S an honor for me, an old layman from the sand dunes on the shore of Lake Michigan, to be asked to say a few words to you general practitioners. For me, you are the prototypes of a new man of medicine, who will help all of us in all our troubles, our sickness, our sins and our sorrow.

My personal sorrow is that of being one of the fifteen million geriatric problems bothering you doctors. Geriatric specialists have given me expert counsel: on how to keep the soup stains off my vest; on how to act my age (sixty-five); on how to live with an occluded coronary or a stroke (knock wood) if either should hit me. On how to live, like the old crock I am, and like it. But I don't like it.

What I want is to keep a bit of the old bounce, the old swoosh, the old moxie that for many years gave me a feeling of indestructibility. Yet for many years I've felt the fire burning lower. What has your wonderful medical science to give me? To push back my deterioration?

To look for tricks against old age has been my hobby for more than twenty-five years; the results of that search are my story. Of course there are optimistic physicians who believe there's more for me to do than act my age and like it. Dr. Ward Crampton, of New York, says there's such a phenomenon as de-aging. "Our chief enemy is not old age," he says. "It is damage, largely avoidable."

The trouble alas is that I have been too stupid to keep away from damage. But Dr. Crampton cheers me up. "These damages are largely correctable," he says. That's good, because, in my time, I've been damaged and have damaged myself, plenty.

Especially past fifty-five I've suffered afflictions, annoying or partly disabling, and one or two of them potentially dangerous to life. For example: breakdown of the bones of both feet with resulting tendinitis and arthritis of my knees so I could just shuffle along; fatty infiltration and early cirrhosis of my liver; labile hypertension and looming danger of fixed high blood pressure and its possible cardiovascular consequences; auricular flutter with varying A-V block and enlargement of my heart; and last winter, severe impetiginized herpes zoster of all branches of the fifth cranial nerve, with evidence of encephalitis.

When this last one hit me—at the same time as a bad bursitis with a partially frozen shoulder—I really felt like Job.

These personal disasters were a blow to my arrogance. For many years before these deteriorations overwhelmed me I'd gone on a theory. It was to the effect that a high protein diet, high vitamin and male hormone supplements, together with walking and running on the beach in the sun and the rain and swimming in Lake Michigan's rough surf—that this regimen might retard old age. To hell with doctors and their periodic medical examinations. Activity, vitamins, sun and surf were medicines enough.

So they'd seemed, till the crackup. So they weren't. So I was wrong.

When my liver went bad in the late 1940's, the presenting symptom was a deep fatigue that made me feel I was walking against a gale of wind. That, plus marked jaundice, resulted in my wife Rhea and my friend Dr. Ralph D. Shaner getting me at last to a physician, the late Dr. Henry A. Rafsky of New York. He saved my life.

That great and gentle doctor—God rest his soul—walked into the room a few days after his first examination and laid before me the devastating figures of my liver function tests, among them an ominously reversed albumin/globulin ratio. "Do you want to go on living?" he asked me. I was in those days a heavy steady drinker—Dr. Rafsky cut me down to a miserable three jiggers of Scotch a day. He prescribed three shots a week of crude liver, big ones, and a higher than my already high protein diet, and higher than the already high vitamin supplements I'd been taking for years.

Soon my fatigue began to fade. Then my friend Boris Burns came to Dr. Rafsky's assistance, sug-

gesting heavy supplements of choline, methionine, inositol and B_{12}, all of them in capsules of Methischol. To help hurry the excess fat out of my liver. Soon I felt a further surge of energy.

Shotgun therapy? Yes. But I was a human guinea pig stricken with a deep and stubborn illness. In a few months all my liver function tests and even the sinister reversed albumin/globulin ratio had gone back to normal and my enlarged liver had faded back under my ribs. On the beach I began walking fast again and even jogging, as in road work, but barefoot. This broke my feet down structurally, and then my knees stiffened, with knifing pains. For many months getting out of bed, mornings, was an agonizing ceremony. Walking any distance at all was only a memory.

A brilliant rheumatologist prescribed orthopedic shoes. No go. A distinguished orthopedist recommended Kenny treatments. Effect—strictly temporary. And the amounts of anti-inflammatory steroid hormone needed to keep down the agony in my knees might soon have turned me into an edematous, moon-faced manic with diabetes and broken bones.

Then a general practitioner, Dr. Helen Crocker of Briarcliff Manor, said to me, "I know a man who'll be able to help you; I don't mean cure you." So George Anthony Schroeter, doctor of podiatry, of Briarcliff and Brooklyn, a bone-setting genius, bloodlessly rebuilt my broken feet and sustained them with special appliances. It was a wonderful, slow miracle. He chased inflammation out of my feet and knees by daily hot whirlpool baths, taken with a portable whirlpool machine of his own invention; this I used daily, religiously, at home.

In the summer of 1952, experts had told me I'd done my walking. Within six months Dr. Schroeter had me walking a couple of miles daily. *Now* it's the old fun to walk four to six miles, which we do every day. There was a bit of the Providential in Dr. Schroeter's cure of my knees and feet.

Last year, when Dr. Paul Dudley White, of Boston, began to digitalize me to control an intermittent ominously rapid pulse—atrial flutter and varying A-V block—and when he reviewed my deplorable past history of excessive alcohol, tobacco and rich food, he gave one part of my old anti-age theory a pat on the back.

"Your past habit of exercise, I think, has saved your life and may continue to do so if you are sensible about it," said Dr. White, master mender of the human heart. Dr. Schroeter has enabled me to follow that prescription of vigorous living.

Right here we encounter mystery. Dr. Schroeter had rebuilt my feet. Dr. Rafsky had fixed my liver. Dr. Mark B. Coventry of the Mayo Clinic had quickly unfrozen my bad shoulder with a single injection of local hydro-cortisone. Dr. Marion B. Sulzberger had rapidly overwhelmed the pus and pain of my impetiginized herpes zoster—with the triple local antibiotic, Neosporin, and massive intramuscular B_{12}. They were all gratified, they all seemed a bit surprised, at the speed of reversal of my deteriorations. Even Dr. White, for all his New Englandish reserve, seemed pleased at how quickly my enlarged heart returned within normal limits.

Why this uniform and rapid repair of damages? The skill of my various doctors, yes. And I thank them all, from the bottom of my heart. To me it was still mysterious. My long continued high vitamin, hormone, outdoor exercise regimen hadn't prevented these deteriorations. *But might they have given my aging body a chemical background to speed up repair?*

How had my regimen begun? Back in 1940, Dr. Tom Douglas Spies had explained to me that disease is chemical and may be chemically reversible. Over the years he'd shown me how folks can die of niacin deficiency without a sign of pellagra; of ascorbic acid lack without signs of scurvy; of thiamine deficiency without signs of beri-beri, and so on. His work had proved that this chemical starvation is always multiple and that it's important to consider in all disease treatment. He had demonstrated beyond doubt that a hidden vitamin hunger can develop even in bankers eating seemingly well-balanced three square meals a day.

So here was my unorthodox regimen: each time Tom Spies reported therapeutic activity of a given additional vitamin, I'd get tablets of it or multi-vitamin capsules containing it. Clinically I wasn't suffering these deficiencies. But I'd prevent them! My battery of pills and capsules grew in size, potency, number and multicolored gaiety. Famed vitamin hunter Dr. Casimir Funk, in his laboratory at U. S. Vitamin Corporation, had developed the theory that vitamins act together with minerals.

I began religiously taking his pioneering vita-

min-mineral preparation, Vi-Syneral. Not maintenance. Therapeutic, terrific, and meant for sick people. I've taken it daily, 365 days a year.

My zeal was greeted with roars of medical laughter. "You're the pharmaceutical industry's dream," said Dr. Wilbur Malcolm, of Lederle, supplying me aureomycin that might prevent or abort bacterial respiratory infections.

Only Dr. Herman N. Bundesen encouraged me. His vitamin, mineral, amino acid regimen was more complete than mine, and he got me started on daily male hormone, methyl testosterone. For this I thank him, seventy-three-year-old tornado of well-directed energy that he is. The anabolic effect of testosterone taken faithfully for fifteen years may well have helped my aging muscles, including the left ventricle of my aging heart. And boosted my bounce and moxie. I thank Elmer Bobst of Warner-Lambert for supplying me with my first male hormone.

Now again, and finally, we meet a mystery. For many years I was grossly overweight with a labile hypertension and a tendency to blow my top. On this, my regimen had had no effect whatever. Then in 1954, Dr. Robert W. Wilkins, chief of the hypertension service at Massachusetts Memorial Hospitals, Boston, told me of a beneficent side-effect of Rauwolfia—he'd introduced that drug to the medical profession of our country.

This side-effect was tranquility.

Dr. Frederick Yonkman, of Ciba, supplied me with Rauwolfia's pure alkaloid, reserpine, tradename, Serpasil. This, in a very low dose—0.1 milligram once a day—joined my ridiculed jumble of tablets and capsules. First result: slowly, a mild drop in blood pressure to within, or close to, normo-tensive range. Second effect: relaxation. Wilkin's patients had described it to him as a don't-give-a-damn feeling. Over months, came what amounted to a character change for me: no more blowing of gaskets, even under provocation. And finally—was it coincidental?—a gradual but more and more marked drop in my old voracious appetite.

Marked drop in between-meals raiding of the icebox. No more second helpings. Then smaller helpings. So, over some sixteen months a weight loss of 45 pounds. No so-called will-power involved. *No attempt to diet!*

But after many months, despite the very small daily reserpine intake, came another side-effect. Not so good. Lethargy. And a trace of gloom, never before experienced. It vanished when reserpine was withdrawn. Then, slowly, back came tension, worry and with it, the big hunger.

Then came help, and if it weren't pharmacologic, it seems for me as if God has had a hand in it; anyway, I thank Him for it. He worked through Dr. John T. Ferguson, at Traverse City State Hospital in northern Michigan. Fergy calls himself a general practitioner interested in mental troubles. For him, reserpine—as in many other institutions—brilliantly tranquilized hundreds of over-active, agitated, mentally disturbed patients. But then too many of them were sent into the dumps of depression by the Indian medicine.

Dr. Ferguson tried to counteract these depressions with various analeptics, caffeine, the amphetamines, et cetera. No go. Then last year Fritz Yonkman of Ciba sent him a strange chemical. Phenyl-(alpha-piperidyl)-acetic acid methyl ester. For short—methyl-phenidyl-acetate. It is an awakener, a booster of mental and physical energy. Ferguson found this new analeptic remarkably counteracted reserpine depressions without halting its tranquilizing action. In a wide dose-range methyl-phenidyl-acetate has no bad side-effects, reports Ferguson after giving it to over 1000 patients over a year. This has been confirmed by five independent investigators.

Wasn't this something to add to my personal bag of tricks against my inevitable advancing senility? I asked Ferguson whether he thought reserpine had had anything to do with my weight loss. "From our experience," he answered, "excess eating is one expression of inner tension or anxiety. Resolving these chemically leads to less eating and adjustment of weight towards normal."

I've added methyl-phenidyl-acetate — trade name, Ritalin—to my small daily dose of reserpine. No lethargy now. No big hunger. But serenity remains. And a curious by-product: It's fun to face my typewriter at seven in the morning, and words come easier than they've done in years; there's a new bounce in my step on long walks on the beach, and it's good, as in the old days of long ago, to hit the cold surf in this month of October. And there's new enterprise. My mentor, Charles F. Kettering—Boss Kettering—says that hostility to new ideas, in formerly

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Developments in Communicable Disease Control

By F. H. Top, M.D., F.A.C.P.
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IT is trite to say that the common communicable diseases have faded in importance from the standpoint of incidence, disability and death. It is certainly true for the latter two categories and partially true for the first. The marked changes which have occurred in communicable diseases have been operative since 1900, but principally in the last three decades, and they came about because of no single set of circumstances. One calls to mind isolation and quarantine regulations, environmental sanitation and immunization as factors of some importance, particularly the latter two. The "Personal Hygiene Movement" dating around 1910 was a likely pertinent force, and more recent students of the problem would immediately mention chemotherapeutic and antibiotic agents. More adequate housing and a better nutritional state, particularly in children, cannot be omitted from consideration as contributing factors. Additionally, the marked improvement in medical education, the increased acceleration in medical research, and an eager willingness on the part of professional workers (medical and allied professions) to utilize new discoveries have left no small imprint on lessened occurrence, decreased severity, and death resulting from communicable diseases.

Past Basis for Control

At the turn of the century, the basis for isolation and quarantine regulations were set rather definitely as the etiological agent of each disease was discovered, and severe restrictive measures were assiduously carried out, especially during the first three decades of this century. Somewhat less rigorous application had already crept into communicable disease control practice by the time the sulfonamides and antibiotics appeared, and their advent merely hastened the change for the limitations, and inherent deficiencies of restrictive measures became apparent gradually.

From the start, it was apparent that isolation of the patient and quarantine of contacts or premises constituted great interference with personal and family liberty. It often meant a serious loss of earning power or considerable loss of time from school; however, at the time, restriction seemed less hazardous than no restriction. The true import of healthy carriers as prime reservoirs of infection both in epidemic and inter-epidemic periods had not been discovered, and recognition of the difficulty of healthy carrier detection was unknown. All of this added up to the fact that isolation and quarantine as a means of reducing the occurrence of cases had great limitations. The importance of the family group as a unit in the study of communicable diseases led to information which indicated that infection entering the family unit, whether in the guise of apparent or inapparent infection, soon affected the other members of the group and that by the time the first case was recognized clinically, sick and well were likely infectious. There were other limitations to restrictive measures. Many cases were mild, while others went unrecognized either by ignorance or intent, which meant that health departments were seldom notified of all diagnosed cases and could have no information on the undiagnosed illnesses.

Present Basis for Control

The availability of antigens for inoculation against certain infectious diseases and success in rendering large numbers of individuals immune to attack has decreased the number of susceptibles to a disease like diphtheria under an adequate program of prevention to a small proportion of the population making restrictive measures less necessary. For any given disease like diphtheria or smallpox, however, the price of a large measure of freedom from it is dependent upon vigilance in carrying out primary inoculations and booster injections. Unfortunately, an early marked reduction in deaths and a later diminution in number and severity of cases of a disease tended to lull the public and some physicians alike to the necessity for not only continuing but exerting greater efforts at maintaining a high level of immunes in the population. Low incidence of disease demands more frequent artificial (primary and booster dose) stimulation by injection of antigens because natural (first and subsequent infection)

stimulation is less commonly encountered during periods when infectious disease occurrence is low. Small outbreaks of diphtheria are increasingly being reported in communities where immunization programs have been neglected.

For many bacterial infections, the patient, for all practical purposes, is rendered relatively non-infectious to others within twenty-four hours by adequate doses of the sulfonamides or antibiotics. The new therapeutic agents are not specific for viruses, as in the instance of measles, rubella, chickenpox and mumps, but are effective in holding in check secondary invaders when used in weaklings (children with heart disease, nephritis, malnutrition or some debilitating condition) and to modify secondary infections and complications in normal children who may contract the diseases.

Quarantine is now used infrequently except for a disease like smallpox, and although isolation is advocated for the common diseases of childhood the emphasis is on the benefit which accrues to the patient in decreasing contact with secondary invaders, which may lead to complications of a serious nature, rather than restriction to protect others, many of whom, as older children and adults, are immune.

Hospital and Home Isolation

When the common communicable diseases were more prevalent and occurring in epidemic form, the isolation hospital, variously called "pest house, fever hospital, communicable disease hospital," was common to the larger cities; or an isolation unit was frequently noted as a separate part of a general hospital in smaller cities. Early in the present century it was thought that the common communicable diseases could be better controlled by isolating as many cases as possible in such hospitals or units. During epidemic times this was not possible, and for certain infections the general mildness of the disease made it difficult to accomplish. Severely ill patients were undoubtedly better cared for in hospitals than if they were left in the home, but the high fatality rates incident to hospitalization of the critically ill created a fear of sending patients to hospitals, and they were often admitted under duress. Wards were the order of the day, and for a disease like scarlet fever, now known to result from infection with many strains of hemolytic streptococci, complications were more likely to develop, because as a rule they were caused by a strain of organism other than the one causing the disease and the new strain was readily picked up from other patients in the ward, particularly from children.

Today, hospitalization is infrequently necessary because the attack is mild or because sanitary facilities and better housing facilities makes isolation in the home more feasible. Available therapeutic agents for many of the infections further adds to the decreased need of isolation hospital facilities. In 1948 the average occupancy rate of isolation hospitals was 43.6 per cent. Long before this date some isolation hospitals began converting their empty beds to use by caring for patients with tuberculosis or those with chronic illnesses and by domiciliary care for the aged.

Special facilities and institution of proper techniques made it possible to eliminate some communicable disease hospitals and to establish instead small isolation units in general hospitals or by adequate planning to establish or convert to two-patient rooms incorporating appointments which allowed such rooms to be used as separate small isolation units. We must admit with Anderson[1] that the communicable disease hospital, or as he calls it "the fever hospital," like any other specialist hospital, exists mainly as a place in which expert medical and nursing attention may be given to severe forms of acute infectious disease and only to a small extent as an isolation unit for unusual epidemics.

A Continuing Problem

In a recent timely article, Bauer[2] directs attention to the present importance of communicable disease problems. With recession in incidence, severity, and death has come the inevitable "laissez-faire" attitude which so often follows on marked advances in control or treatment of infections. Many lay people and some physicians feel that the control of tuberculosis is no longer a problem, and their attitude toward smallpox and diphtheria is similar. Probably you have heard a colleague remark, "The new drugs have licked tuberculosis and in ten years it will be a rarity." Well, unfortunately, communicable disease control isn't that easy. When a disease is brought under control it must be kept there and it is exceedingly doubtful from the biological point of view that species of organisms pathogenic for man will be annihilated.

Here are a few facts which Bauer[2] cites as evi-

dence that communicable disease remains a serious problem in the United States:

1. Of every ten deaths that occur, one is caused by a communicable disease; for those under age thirty-five the ratio is 4 to 1, and over thirty-five years, 12 to 1.

2. About one and one-half million cases of notifiable communicable diseases are reported annually in the United States; to these must be added the generally non-reported illnesses such as upper respiratory infections, diarrhea and gastroenteritis.

3. Infectious diseases as a whole account for the majority of absences among the working population and among school children; in the armed forces they are the main cause of absence from duty.

4. An estimate of the cost in care and time away from work is difficult but it must be in the billions, for the sales of antibiotics alone amount to approximately a billion dollars annually.

A Biological Phenomenon

An infectious disease is a biological phenomenon. In Hippocrates's time the environment was stressed as most important in causation of disease, and the "humours of the body" also were emphasized. For many decades following the golden era of bacteriology the most important component of infection was considered to be the etiological agent of a given disease, the parasite. In recent years Gordon[3] and others have emphasized the concept of multiple causation—host, parasite and environment—in deciding the pattern of infectious disease incidence. The study of the close inter-relationships of all living things to each other is called "ecology" and the relationship of man with all living things is called "human ecology." The study of host-parasite relationships then in an ecological setting has brought into focus all three components of infection, namely, the host, the parasite and the environment. In relationship to the environment, there are physical, economic and social forces, which play a role in causation of disease. All of these have caused a change in our attitude toward communicable diseases and their control.

In the light of the biological consideration of disease, recent concepts regarding spread of infectious diseases must be discussed. The first relates to knowledge concerning the importance of cross infection. For a time air-borne infection was not seriously considered, but in recent decades and during World War II it was adequately demonstrated that many infections are spread by droplets, which, when extruded from the nose and throat as by coughing, laughing or sneezing, are expelled into the air. Rapid drying takes place, some particles falling to the ground while others remain suspended and are air-borne, to be later impinged on ceilings or walls while others fall upon bed clothes and the horizontal surfaces of furniture or floors. The facts gained from this work fortified the impressions gained from clinical observation and made it desirable to isolate patients with a disease like scarlet fever in smaller units (one or two bed units) rather than in large wards, where there was more chance of one patient contaminating another through interchange of organisms. It was soon discovered that complications were often the result of infection by a strain of organism other than that which caused the patient's first admission to the hospital due to contact with some other patient in the ward. Commonly, otitis media developed in this manner, and at the present time such an occurrence would be considered an indication of poor management or poor housekeeping.

A second important change, which has influenced the management of infectious diseases, has been chemotherapy. The use of sulfonamides and antibiotics has had a marked effect against bacterial diseases, with a few virus infections also amenable. These agents have become exceedingly important in the treatment of acute infectious diseases. In comparison with former years, to be without them would be unthinkable, but the marked enthusiasm for them following their discovery has altered somewhat, when we consider the secondary effects which they may induce, such as host hypersensitivity to the drug, change of intestinal flora with drugs of the tetracycline group, and resistance of organisms to certain of the antibiotics. In this connection, DDT and similar insecticides for the control of arthopods must be included, for they, too, have posed serious problems.

Summary

As Bauer[2] clearly indicates, the problem of communicable diseases and their control is still with us. As physicians our duty is clear; we must

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Recent Observations in Medicine and Health in India, Pakistan and Kashmir

By Nur M. Malik, B.D., M.D., A.I.C.S.
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THE American-piloted Sau'di Arabia plane carrying Moslem pilgrims from Mecca and Medina sailed over sleeping Karachi and landed gently on the well-kept port of the city, the capital of Pakistan. Smartly uniformed Pakistani officers were on duty at the airport. A public health official came aboard and vigorously and efficiently sprayed the belly of the plane with an odoriferous disinfectant. The thick white cloud burned the tired eyes and parched throats of the weary pilgrims, causing them to cough and choke. Some complained and cursed into their beards but accepted the precaution as a final trial of the hajj and crept down the gangway, easing stiff limbs to action as we were all herded into a dimly lighted shed and given various landing forms to fill out. The port officers—health, police, customs and others—were extremely courteous to me, and I finished my papers quickly; but then I was approached timidly, first by one then another of my fellow passengers, for help in completing their forms, until I had a considerable gathering of these illiterate hajjis about me. I could not refuse their gentle insistence and it took some time to finish the task because they were often reticent about giving the names of their female relatives, they did not know their birth dates, and they spoke in accents that were difficult for me to understand after my long absence from my homeland. Their sincere gratitude rewarded me for my trouble as did the appreciative little smiles of the port officials. Preliminaries over, I was finally released to meet my host, a young man who had spent a couple of years getting "practical training" in mechanical engineering in Detroit after taking his degree from Massachusetts Institute of Technology. Dawn was breaking when we reached his home in Nazimabad, some six miles outside the city, a new and fast-growing suburb which boasted a good water supply system but no other public facilities.

Since the achievement of freedom some eight years ago, many of my countrymen from India, Pakistan and Kashmir have visited us in Detroit, and during my three-month visit in those countries I was fêted in their homes in cities, towns and villages. This close contact permitted me to discuss and to evaluate the various aspects of the development I observed. This was my first visit to the land of my birth since her freedom from the British, and I was privileged to see, in my three months of travel there, many of the changes and much of the progress these countries had vainly striven for under the British regime.

One of the aspects of change which most encouraged me was to be found in the field of medical education and the closely allied field of public health. I had been a product, originally, of the old system of medical education which had produced a compartmented hierachy of medical practitioners ranging from the Licentiates of Medical Practice (L.M.P.), in the Indian Army known as Indian Subordinate Medical Department (ISMD), through the Bachelor of Medicine, Bachelor of Surgery (M.B.B.S.) and, even, by special dispensation granted to some rare personages, the Doctor of Medicine (M.D.). There was also, at one period of development, the degree of Licensed Medical Service (L.M.S.), possessors of which were known as Assistant Surgeons (the L.M.P.'s were called Sub-Assistant Surgeons). The ISMD was changed after World War I to IMD (Indian Medical Department), making the Indian practitioner akin to the "heaven-born" IMS, the well-paid Indian Medical Service—real "Brahmin" compartment of the hierarchy—reserved for Englishmen themselves or their European subjects. Sir William Osler, at one time in his earlier years, had considered "going out to India" with the IMS.

During the years in Detroit, a number of

Presented in part before Naval Reserve Medical Company 9-5, October 4, 1954, by invitation from Captain O. A. Brines, M.D.

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Indian and Pakistani physicians have visited in my home; many of them are professors in medical colleges and when I visited them I was able to see at close vantage a few of the institutions of learning, as well as hospitals and nursing training establishments.

The medical schools and colleges which have granted the degrees noted above, have existed side by side for years, in some instances on the same campuses; the "school" has been the inferior set-up and it is being gradually supplanted by the medical "colleges"—or being improved to meet the higher standards, which are not noticeably inferior to those in the western world. The colleges confer the M.B.B.S. degree after seven years of study; two premedical and five medical. Graduates are granted the M.D. degree upon submitting an original research paper and passing a comprehensive examination, work for which usually requires an additional two years after the seven. Neither the M.B.B.S. nor M.D. degrees are registerable in the United States, although the graduates are being accepted in increasing numbers by our hospitals, for postgraduate studies and residencies.

I shall attempt to offer in the following pages some facts about health and medicine in three countries: Pakistan, India and Kashmir—countries which until comparatively recently comprised one dependent nation within the British Empire. If, occasionally, I refer to the peoples of these countries as Indians, it is that my mind constantly thinks of them as one—despite the factors of division which have come about since they have achieved freedom; one might as accurately refer to a Madrassi or Bengali as to a Kashmiri or a West Punjabi—all are Indians and no setting up of new boundaries can really establish new cultures overnight, though given time and impetus, new cultures will probably become more apparent.

Pakistan

India became free on August 15, 1947. Pakistan, "land of the pure," was declared a separate Moslem State one day before that. This partition caused great loss of life and property to both countries and in addition precipitated an unprecedented influx of millions of destitute refugees into both countries. The health and general welfare of these uprooted millions presented many difficulties, and the shortage of equipment and lack of trained personnel augmented the gravity of the situation. As a result, even six years later, the problems of the refugees were receiving administrative attention; things move slowly at best in all countries except the United States. In India and Pakistan, things were not at best before separation, and yet six years had seen unprecedented changes for the better—even for the displaced millions.

Student nurses, Delhi College of Nursing, India. Front and back views. (Photos by Mrs. Ruth McEvoy, Detroit, Michigan)

A visitor soon comes to know of the Government's efforts to do all in its power. Quite early, under its impetus, the social uplift program was started, and plans for the opening of new medical colleges and health centers went forward along with the program of improvement of those already in existence—plans drawn up by all the states and provinces forming Pakistan.

Under this program, additional accommodations and equipment will be provided for such institutions as the Jinnah Central Hospital, the Civil Hospital and the Lady Dufferin Hospital in Karachi. New Out-Patient Departments are planned for the first two of these hospitals and arrangements are underway for new lecture

rooms, deep x-ray therapy machines and for a separate post-mortem building.

The plan aims at expansions and improvements of medical and health facilities for maternity and child welfare, by opening new centers. There will be an increase in the number of tuberculosis clinics and sanatoria; at the Leper Hospital, Manghepir, it is proposed to provide additional accommodations for leprosy patients.

The first All-Pakistan Health Conference was called at Lahore in December, 1947, "to consider the problems arising out of partition and to devise ways and means of improving medical facilities in the country." The conference recommended starting new medical and health institutions to replace those which were now in India. It stressed the need for accelerated training for doctors, nurses, compounders and technicians— to meet the acute shortage existing in the country. These recommendations have been implemented as much as the financial resources of a new country with many other problems could permit.

Four years later, 1951, the Second Health Conference was convened at Dacca, East Pakistan, "to review the progress made in medicine and public health since the First Conference." This was attended by the Ministers of Health of the Provinces, aided by their Advisers. The Conference approved a six-year plan for further development of the health measures. Pakistan will have, at the end of that time, 160 hospitals of 200 beds each, 500 hospitals of thirty beds each, 2000 dispensaries in the rural areas, four Tuberculosis Sanatoria of 200 beds each and one new hospital of 500 beds for the city of Karachi. The plan covered the opening of a new medical college in West Pakistan; institutes for medical research, hygiene, and preventive medicine for nutritional research; a laboratory for testing drugs and a plant for the manufacture of medicines. A separate factory for penicillin manufacture will also be built under this plan.

Serious efforts are being continued to insure that the standards of medical education remain as high as that of any first-class institution. There will be a general improvement of the existing medical colleges and schools, and of the already functioning hospitals. The staff of the Dow Medical College, in Karachi, has been increased. A plan for the provision of additional equipment and for the building of new hostels for men and women students, separately, was drawn up and is now being rapidly implemented. Classes were started at the

TABLE I. MEDICAL COLLEGES IN PAKISTAN

City or Town	Name of College	Number of Students
Dacca	Dacca Medical School	100
Hyderabad, Sind	Liaquat Medical College	42
Karachi	Dow Medical College	130
Lahore	King Edward Medical College	120
	Fatima Jinnah Medical College (for women)	75
Multan	Nishter Medical College	75

college for training in pharmacy. The schools at Dacca, Karachi and Lahore continue their work in training nurses. For postgraduate medical training within the country, a proposal to establish an All-Pakistan Postgraduate Medical Institute has been considered. To make up any deficiency in their education, the medical personnel is being sent abroad for higher studies; many of their number have returned and are now serving the country; among them a few have been trained in Detroit's hospitals and Michigan's Medical Schools.

To educate the general public in the principles of health and hygiene, the Health Education Bureau was established in August, 1952. A Public Health Bill for the country was drafted, with the object of devising effective means of preventing the outbreaks and spread of infectious diseases. The bill is now under consideration and will be presented to the Pakistan Legislature. A program for the examination and treatment of school children of Karachi has already been approved and is being rapidly implemented, to be administered by the office of the Chief Commissioner of that city.

Extensive BCG vaccination work is being carried out all over the country with the assistance of the World Health Organization. Under the technical assistance program, arrangements have been made to secure fellowships and scholarships for training abroad, as well as for equipment for the medical and public health institutions in Pakistan, from WHO, UNICEF, the Technical Cooperation Administration and the Colombo Plan authorities. Programs for the expansion of the BCG work and for setting up a DDT plant have been approved by the UNICEF. With the help of the WHO, a social hygiene and skin center has been opened in Karachi.

The Government had early felt the need for developing coordinating medical research, but was unable to initiate action for want of funds. Last year, however, a sum of 50,000 rupees was sanctioned, and the Pakistan Medical Association was authorized to coordinate the research activities

TABLE II. HOSPITALS IN PAKISTAN

State or Province	Number of Hospitals
Bahawalpur	38
Baluchistan	41
Dir	1
East Pakistan	788
Kalat	17
Karachi	26
Khairpur	22
Kharan	1
Lasbela	3
Makran	4
North West Frontier and Agencies	184
Sind	120
Swat	3
West Punjab	622

in the various medical and health institutions and to disseminate the information. To estimate the scope of such a project, it might be well to take a count of these institutions already functioning in Pakistan.

The medical colleges are six, as listed in the accompanying table.

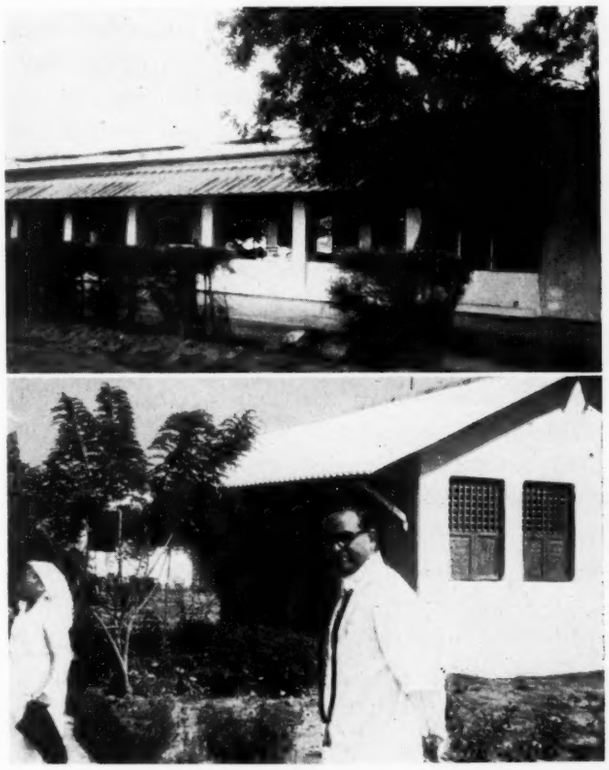
Besides those named, a new medical college has been sanctioned to be opened under the social uplift program at Chittagong, East Pakistan. It will cost about 4,190,000 rupees and will have a 500-bed hospital attached to it. The hospital will later be expanded to a 1,000-bed capacity.

In addition to the colleges, there are six medical schools for the training of the licentiates. Of these, five are located in East Pakistan—at Bogra, Mymensingh, Rajshahi and Sylhet—and one at Quetta, Baluchistan. The number of students in these schools varies from 75 to 120 and the course of study is of four years' duration (following successful matriculation from high school).

There are 1,870 hospitals in Pakistan, large and small; well-equipped, moderately so, and some poorly. The accompanying table will give some idea of the distribution of these hospitals.

These institutions have a variety of sponsorships, from the comparatively numerous government owned and administered, such as the Jinnah Central Hospital in Karachi; to those, also numerous, administered by various mission groups such as the Adventists, the Presbyterians and the Catholics; down to the community owned, the nursing group owned and the privately owned establishments—all of varying degrees of efficiency and all fulfilling the need of their communities to the best of their knowledge with the equipment at hand.

The Jinnah Central Hospital at Karachi was acquired by the Pakistan Government from the British Royal Air Force in 1948; it was to have been reserved for the use of government servants but was subsequently opened to the general public. It is a large modern institution and is being rapidly staffed with well-trained foreign returned younger men of the profession. The day I visited



(Above) Madras Government Tuberculosis Sanatorium, an open air unit for twenty patients.

(Below) Madras Government Tpberculosis Sanatorium; convalescent hut for two patients. Dr. Major K. N. Rao, I.M.S., seen in the picture, is the surgeon-superintendent. (Photos by Miss Suzanne Copeland, Detroit, Michigan.)

there, one of the surgeons told me of an operation performed that morning on a female patient with advanced carcinoma of the upper end of the esophagus, and of other cases of similar seriousness. His manner was straightforward and matter-of-fact, and I was impressed that Pakistan's surgeons will make their place in the world.

I had a more than casual contact with one hospital in Karachi; a few days after my arrival there I became ill from what is commonly termed "tropical tummy," a gastro-intestinal disturbance probably caused by a number of things, all new to the western digestive system. From previous experience, I knew how serious such conditions can become; therefore, I consulted with my friends and decided to enter the clean, modern Seventh Day Adventist Hospital for a week-end. I spent four or five days there and became well acquainted with the institution; its small but devoted staff of

American doctors and nurses is doing, with remarkable efficiency, a very difficult and sacrificial work. Their surgeon was away on leave in the States while I was there, and they honored me by asking my opinion about a few of the more complicated cases. My popularity had a disturbing effect: I began to be consulted, too, by the male nurses and some of the orderlies for help "to buy an American degree" like mine. My sincere and patient explanations in answer to their requests, failed to convince them; they did not believe that in America degrees are not being sold, though I related to them how many years of toil and study I had undergone in that distant land, and told them of the adverse conditions of language, food, religion, climate, and color discrimination—a struggle to keep body and soul together, to strive, survive, and to succeed . . . a little. I received the attention my intestinal tract required and was given additional advice by the hospital staff concerning the various threats to health that must be kept in mind during my visit in the country. As a result, I had no further ill health in the succeeding three months.

At the American Embassy office at Karachi, I was advised to visit the Holy Family Hospital, an old institution which was close by. A Sister was attending to a group of women patients when we walked in. They quickly covered their faces to guard themselves against the unwelcome eyes of strange men. I realized at once that they were purdah Moslem ladies, and experienced a twinge of some indefinable pain at their automatic action: a mixture of regret that I had infringed on their privacy and of remorse that they felt the need for that privacy. Before they had noted my presence I had had a quick glance at their faces and was aware that they were expectantly content, adoringly appreciative of the Sister in charge. Because of the prevailing system of purdah in Pakistan, all female patients in these hospitals are treated by lady doctors and the Sisters, whose garb is reminiscent of the veil, are highly favored by the women of the country. Holy Family Hospital is well equipped and efficiently administered, and maintains a typically gentle and considerate, intelligent staff. A new hospital which was in process of being built was soon to replace the old. There was another under construction at Delhi, which I saw several weeks later, and still another of the same community is serving at Rawalpindi in the Punjab.

It will be noted in the above chart of statistics listing the Pakistan hospitals, that no mention is made of bed space. Such information is available, of course; but it is really not to be accepted as gospel, particularly concerning the more isolated areas. It might be well to think of the Indian bed as the type Jesus mentions in one of his miracles when he tells the stricken man to pick up his bed and walk. The Indian travels with his bed and bedding, and when he arrives at his destination he is at home. Many a village dispensary compound is occupied by the sick in times of pestilence; and their nursing also presents but a small problem, for they bring part of their family along and are tended for their personal needs by their relatives, under the doctor's surveillance.

India

From Karachi to Ahmedabad, India, is but a short flight. The graceful Dakotas, of India Air Lines, droned over the peaceful farm lands which, from above, looked exactly like an American countryside. Among the passengers was a rich Marwari gentleman with his wife and six children. The parents reclined in their seats, not needing to worry about the problems of their young ones, for the oldest, a girl of about fourteen, nursed them efficiently as, one by one, they turned pale and green and suffered various degrees of airsickness. I was fascinated by the young "mother"; she was weighted down by her father's wealth—gold, silver and precious stones! As I envisioned the lucky boy who might marry her and how secure he would be, a forest of chimneys, lazily emitting whiffs of smoke, appeared on the far horizon: Ahmedabad, city of Gandhi's original Ashram or retreat and also India's chief textile producing center. As the plane spread her wings over the ancient town and sailed over the mill stacks, the panorama it provided was one of peace and prosperity.

Ahmedabad contains more than eighty textile mills and produces the major part of India's cotton goods. The mill owners are families of culture—educated, travelled and refined. They vie with one another in philanthropy. All of them have hospitals for the welfare of their employes. I visited some of the larger ones and found them all well organized, but over-crowded. I was surprised to be introduced to a "Vaid," a practitioner of the indigenous system of medicine, one of the

regular members of the hospital staff. "He is a clever diagnostician," the chief surgeon told me, sensing my reaction. "The patients have the right to choose their own doctors."

The progessive Ahmedabad is building Gujrat University. New buildings for the various colleges and for hostels are rising. I listened to a scholarly dissertation on nuclear physics by the head of the Physics Department, and visited other colleges. The small garden of medicinal herbs connected with the College of Pharmacy appealed to me; it is still in its infancy but with good care should become a successful project.

Mahatma Gandhi's ashram or retreat is near the town on the bank of the Sabarmati River—he is often referred to as the "Saint of Sabarmati." It is a peaceful and nearly self-sufficient colony; its members lead a monasterial life, serving in various capacities the community that has grown up about the ashram. It was from this center that Gandhi began his famous salt march to the sea, there to "make" salt in defiance of the unjust and injurious English law which prohibited the manufacture of salt by the Indian people and taxed them when they purchased legal salt; the equivalent of the American Boston "tea party." Two "brothers" conducted us (I was accompanied by various friends who had visited me on several occasions in Detroit, among them the mayor of the city who had spent a day with me at Detroit's city hall, meeting our mayor and councilmen and investigating Detroit's sewage disposal plant, among other things; he is, of course, a mill owner and a member of one of India's outstanding families) around the ashram, explaining and answering questions. They pointed out, reverently, the first hut on the premises, which had been built by Gandhi himself. His office room is kept just as he left it, including the little desk, cushion and writing articles. They were in the process of compiling all his writings in book form and were collecting material for it. I mentioned a letter he had written me many years ago, and they asked for a copy of it. They are continuing his work among the untouchables and are bringing up a group of untouchable girls, educating them and training them in handicrafts to which they are suited; taken into the ashram when quite young, they will be kept until their marriages are arranged. Of course, this is but one of the activities and responsibilities of the followers. Somehow, there is no incongruity in the two aspects of the city; the spirit of Gandhi is also the spirit of the mill-owners, and the proximity of the modern mills to the Gandhi ashram provides a spiritual balance that inspires.

I believe my friends in Admedabad outdid themselves in entertainment for me. I stayed there some ten days and could have remained another twenty without making the rounds of the families we know there. Typical of the festivities is an evening I spent at my friend Shautam's home some 6 miles from town on the left bank of the river. He asked all the guests, about twenty-five or thirty men and women, to dinner but insisted that we come at six o'clock so as to enjoy the sunset on the broad river (dinner in India is usually at eight). As we stood on the roof-garden of his luxurious marble home and watched the beautiful display of color and the tropical scene reflected on the waters of the languid Sabamati, the evening sky filled with flocks of parrots, darting by like green arrows; peacocks shrilled, wild monkeys

Bombay Children's Orthopedic Hospital. (Society for Rehabilitation of Crippled Children of Bombay, India.)

The Doctors Dholakia, in white clothes, are the surgeons—both of whom have had their training abroad. Dr. (Mrs.) Saroj Munim Dholkia did her postgraduate work in the United States; her husband is a Fellow of the Royal College of Surgeons, an orthopedic surgeon. (Photos by Miss Suzanne Copeland, Detroit, Michigan.)

chattered and jackals called. It was an earthly paradise. To crown the evening's beauty and charm, someone turned a light-switch and the surrounding trees, bearing colored lanterns, transformed the gardens into a magic fairyland. Food, music, conversation and general good cheer rounded out the evening.

Shautam has built a hospital for his workers; the building was complete and was being furnished. It was to be ready for patients in a few months. There is also another new hospital in the town—still incomplete when I was there—a Government project that will be connected to Gujrat University Medical College. The town is health-conscious and is making strides in disease prevention, especially among the families of the mill workers.

The journey from Ahmedabad to Bombay, about 300 miles to the south, is made in an air-conditioned train, overnight. Bombay is without doubt the first city in the land. Suffice it to say, it has good doctors, nurses, hospitals, nursing homes, research institutes and medical colleges par excellence. Bombay's leading surgeons and physicians have been my guests in Detroit and naturally I took advantage of their kindness when I went to Bombay. I was shown through hospitals and colleges and was very impressed. A walk through the wards of the KEM Hospital or the Tata Institute for Cancer is profitable and inspiring. Recently, a small hospital for polio victims had come into being. This was organized by the mother of a little child who had been afflicted with the dread disease and could find no place in India for modern treatment. Her work has inspired a noble following, and has government recognition.

It is in New Dehli, the Capital of India, that we pause to survey briefly the health and medical conditions of the country. Prior to partition in August, 1947, not much progress was made in these fields. Conditions reached their worst after partition because of the influx of displaced persons from Punjab. In 1946, before partition, there were in the country 5,882 hospitals with 58,410 beds. The accompanying table listing the birth, death and infant mortality rates in Registration Areas of India, provides another graphic picture of conditions and of the general upward trend after partition, despite the more acute conditions. By 1951, the number of hospitals in the country were increased to 8,601 with 113,557 beds.

TABLE III. MORTALITY STATISTICS IN INDIA

Year	Birth rate per 1,000 of population	Death rate for 1,000 of population	Infant Mortality per 1,000 live births	Population in Registration Areas in 1,000's
1947	26.6	19.7	146	240,511
1948	25.5	17.2	130	242,728

Of course, the medical facilities for the whole country are insufficient, as will be seen from the following tabulation which gives the proportion of medical personnel to population:

1 Doctor per	6,300
1 Nurse per	43,000
1 Health Visitor per	400,000
1 Midwife per	60,000
1 Dentist per	3,000,000
1 Pharmacist per	4,000,000 (and to 3 doctors)

The greater proportion of India's population lives in rural areas. It is there that the lack of health and medical services is felt most acutely. This is partly due to the fact that 75 per cent of the doctors are located in the cities and towns. Because of this situation, since partition, the graduating doctors are urged to settle in the outlying village areas, at least for the first few years of their careers. As in other countries, this plan does not appeal to the younger men. Talking with them one learns that it is unreasonable to expect such a sacrifice from them when they have invested so much time and money, and often have to support large families and meet other obligations in life. The need, therefore, is both to increase the existing facilities for medical education and to offer greater incentive to young graduates to induce them to go out into the rural areas.

"It is a tragedy," pointed out Dr. Kovadkar in his address at the Medical Licentiate's Conference at Poona last year, "that while on the one hand the country is suffering from the dearth of medical men, there is the unfortunate fact that the paucity of colleges, the high cost of education, and the longer course of study keeps away a large number of aspiring youths from entering the profession."

To remedy the situation, the Indian Medical Council has suggested that "all existing colleges should, at least, introduce the two-shift system at

once, in order to double the output. At present, the thirty medical colleges in the country are able to yield only about 1,600 graduates each year, which is far too meager a number." Speaking before the Uttar Pradesh Medical Conference at Gorakhpur, Dr. Carole advocated: "Stipends should be given to the deserving students, on the understanding that when they pass out they will work in rural areas for at least three years."

It is felt that the cost of medical education is too high and that a number of students who are fully qualified and anxious to enter cannot afford it. A system of stipends on the proposed lines will be a well-deserved incentive to needy students and will provide a continuous flow of physicians for the villages. The Health Minister, Rajkumari Amritkaur, in her speech at Ahmedabad, deplored the fact that the medical colleges were understaffed and referred to "the deterioration in the standard of training in the institutions."

It is well to look for a moment at the distribution of India's Colleges which turn out medical and health personnel.

TABLE IV. DISTRIBUTION OF COLLEGES IN INDIA

States	Medicine	Dentistry	Pharmacy	Nursing
Assam	1			
Bihar	2			
Bombay	6	2	1	0
Delhi	1*			1
East Punjab	2**			
Hyderabad, Deccan	1			
Madhya Bharat	3			
Madhya Pradesh	1			
Madras	5			
Mysore	2			
Orissa	1			
Uttar Pradesh	2			
West Bengal	7	1		2
	34	3	1	3

*For women only.
**Including one for women students.

This is certainly not an imposing total when one considers the population of the country. As a result of the scarcity of practitioners with modern scientific training, the old systems of medicine still prevail. The two most common are the indigenous systems called the Vaids or the ancient Ayur-vedic of the Hindu, and the Unani or the Greek. The practitioners of these arts of treating ailments are called the Vaida and the Hakim. There are, also, homeopaths; and I met a certain "German doctor" of uncertain background who was doing well in a large town of northern India.

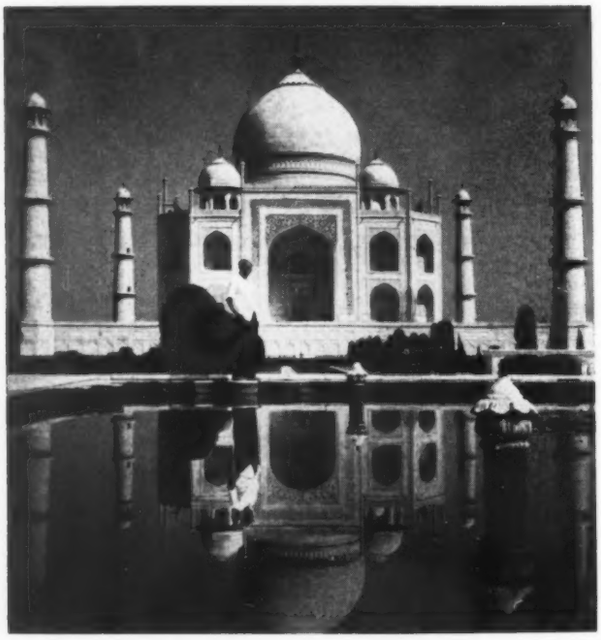
One of the main reasons advanced by many in favor of the indigenous systems, is that God in His infinite wisdom has so planned the universe that He has created specific remedies for the particular diseases of a region. "Notice the Beechoo bouti, the scorpion plant," they point out. "Providence makes its antidote grow close by." When one is stung by the nettle, he rubs the juice from the leaf and is relieved of the burning and itching. This argument, of course, does not follow a universal truth. The real causes are complex and deep and will not be eradicated without time and education, which both work miracles. Recommendations are under way for standardization and closer government regulation; meantime, it is being urged that the real value of all such systems be determined by a Central Research Institute, and that teaching colleges should train the followers of these methods of cure. After this is done, it is felt that all forms of healing will merge into one. At the present time, there are about fifty colleges in India where instruction is being imparted in the indigenous systems of medicine. They are distributed as shown in Table V.

TABLE V. DISTRIBUTION OF COLLEGES GIVING INSTRUCTIONS IN INDIGENOUS SYSTEMS OF MEDICINE

States	Colleges	Hospitals
Ajmer	1	
Assam	2	
Bihar	2	
Bombay	8	6
Delhi	1	1
Hyderabad	2	
Madhya Bharat	2	
Madras	6	1
Mysore	2	
Orissa	1	
Ragasthan	2	1
Travancore-Cochin	2	1
Uttar Pradesh	14	6
West Bengal	5	2
Total	50	18

The account of my hurried visit to the world-renowned Taj Mahal at Agra must wait; suffice it to say, I visited it first by light of a full moon and that it surpasses description. The lady of the Taj, Mumtaz Mahal, wife of the mogul Emperor

Shab Jehan, died in childbirth, giving birth to her fourteenth child. One wonders what the complications were and wishes the good empress had lived in these days of scientific progress.



The Taj Mahal, Agra, India. The lady of the world-renowned Taj Mahal was Empress Mumtaz Mahal, wife of the Mogul Emperor Shah Jehan, its builder, who died in childbirth, delivering her fourteenth child. The author is mirrored in a marble pool before the famous mausoleum.

While seeing the magnificent ruins at nearby Fatehpur Sekri, some 30 miles from Agra, I was intrigued to discover that these royal moguls of some 500 years ago had quite modern bathroom facilities, a fact that is rarely mentioned, but is, I think, important—since it prepares one for the general Indian attitude toward personal cleanliness even today.

Agra has a medical college which has been upgraded from the old training school for Licentiates. The town was host to the annual meeting of the Association of Surgeons of India, of which I am a member, in the last week of December, 1953. I was scheduled to read a paper to that assemblage, but due to my earlier return had to leave it with the Secretary of the Association, to be read *in absentia*.

It had been sixteen years since I visited my immediate family in Punjab, and after returning to Delhi from Agra, I flew to Lahore, traveled by bus to Jaranwala and finished the last sixteen miles in a private taxi—all in one day—to the village of my birth, Sayadwala, in Shiekhupura District. I feel that the longest and the best one mile, even after completing the flying trip around the world, was the last "sweet sixteenth" to Sayadwala.

The sun was turning into a yellow molten ball of fire, on its return trip to America, when I set my feet again on the sacred soil of my ancestors and of my childhood scenes. The news of my arrival spread with astonishing rapidity. The first to reach me were two little girls who must have been keeping watch outside the village. While the driver and his assistant removed the dust of the road from me with a cloth, villagers rolled out like the flood waters of the monsoons. The next few days were passed as in a dream. There were garlands of flowers, parades, dramatic productions, songs of welcome and joy chanted by the village maidens, fireworks, teas and dinners.

More important was the number of patients that came from far and near to be examined by the American doctor. There were the usual medical and surgical diseases: thyroids, pelvic tumors, fractures, hernias, hydroceles—all comparatively easy to diagnose. I made use of the local dispensary which was sadly neglected and, due to the shortage of doctors, run by a young compounder. A fine looking boy of thirteen had a cylindrical soft tissue mass on the external surface of his left arm; a man with a massive strangulated right inguinal hernia was carried in on his bed from a neighboring village; a woman was brought in suffering from an enormous ovarian cyst; a poor old lady had a Colle's fracture of her left hand which was swollen, blue and covered with blebs. (The "bone-setter" had used four split pieces of bamboo stick the length of a lead pencil and incorporated them as splints in a tightly wound greasy rag; after I had reset and re-splinted it properly, the patient was so comfortable that she sat beside my bed all night fanning me so I could sleep free from the heat and mosquitoes!)

The weather was hot and there was too much to do; I began to feel tired. "Why not go to Kashmir?" asked Kapila, a lovely young lady who had studied at the University of Michigan and is now teaching in one of Delhi's colleges. "It will be a real vacation within a vacation. My uncle and aunt there will look after you."

Kashmir

The poets of ages past have described this land of forest-clad mountains, crystal clear, icy springs

and sparkling, tumbling torrents, as "an emerald set in pearls." When the Himalayas were first thrust up from the earth's crust, they enclosed a lake about 60 miles long and 40 miles wide. After long ages the waters cut their way through the encircling limestone hills and partially drained the huge body of water, forming the five rivers of Punjab (five water). The sixty by forty mile area encompasses the incomparable "vale of Kashmir"—abode of the gods and of man. Gulshan, the Kashmiri guide, confided to me on the way to Kheelan Merg, "Jenab (God) has given us two gifts more than to the rest of the world—the cool, clear air and the pure medicinal water. Without these, our race would long ago have perished from the face of the earth." After seeing this beautiful valley which is ringed the year around with an almost unbroken girdle of snow-capped mountains clothed with giant whispering pines, at whose feet gurgle icy springs, crystal brooks and placid lakes ornamented with water lilies and garlanded with an unbelievable profusion of flowers, my sensitive and incurably poetic soul feels that it can anticipate an image of paradise by remembering Kashmir.

The small plane from New Delhi with a handsome turbaned Sikh pilot, accompanied by a Hindu and a Moslem co-pilot, flies to Amritsar, to Jammu, and passing over the Pir Panjal Range of the Himalayas, lands on the delightful little airport of Srinagar, Capital of Kashmir. The temperature drops to 40 degrees with the landing of the plane. Shri Jai Dev, my host, had asked his son to meet me upon my arrival. After the brief customs formalities, in which they asked specifically "Do you have any liquor, tobacco or a gun?" we were on our way to his residence.

We drove on a narrow cement road, doubly lined with tall young poplar trees which were now bare except for a green top fringe of leaves that gave them the appearance of stalwart green-turbaned sentinels. We passed between small farms where men plowed and children tended the sheep and cattle. The small farms, small animals and small children, all gave the countryside an aura of enchantment.

The lady of the house, Kapila's aunt, welcomed us at the door and led us to the charming little garden before the house where breakfast was served in the Kashmiri manner. Later in the day, we went to the Chasma-i-Shahi, or Royal Springs, for a picnic tea. It was a new experience for me to find that the Moslem servants of my Hindu host would prepare the tea for the family but would not partake of it themselves. In India, it is just the opposite, for the Hindus are in the majority in India and consider other groups "untouchables"; here in Kashmir, the Moslems are in the majority and assume the superior position. Lateef, one of the Moslem cooks for the family, marvelled that I, a Moslem and a Hajji (having been to Mecca), could eat with the Hindus. The dietary laws have thus lost their original significance of cleanliness and retained only the fetish of segregation which has perhaps gained undue impetus with the modern emphasis on communal groups.

The Chashma Shahi is a terraced garden on the side of the mountain. It is watered by a gurgling spring that issues from the body of the hill. The great mogul rulers of India, and especially the Emperor Jehangir and his famous wife Nur Jehan (light of the world), had had several such gardens done alike: Naseem Bagh, Nishat and Shalimar are still showplaces, as is Chashma Shahi. They are brilliant with flowers all through the summer and even now in late fall were a riot of color; the leaves were turning on the famed Chinar trees, the magnolias, oaks and umbrella trees. It was more beautiful than I had ever dreamed it would be.

The Chinar tree is government protected and may not be cut; it is larger than our maple and its leaves are almost like those of the maple, though they are heavier and more durable. These leaves are carefully gathered by the poor people and saved for winter burning in their Kangris, the earthen bowl they carry under their clothing next to their bodies, to keep them warm. The prolonged and repeated thermal and, possibly, chemical irritation of the skin, leads to the Kangri cancer well-known to the medical profession. The people carry the Kangri so unobtrusively under their loose garments that one hardly notices it. I asked Khatou, a Kashmiri girl member of the household of my host, if she had a Kangri; "Jenab, yes, your Presence," she answered and pulled it out from under her voluminous clothes as if by magic!

The Director of Health Services of Kashmir is that grand old man of the Indian medical profession, Colonel Sir R. N. Chopra. I met him at the exclusive and quite fashionable Hari Singh Club and later was invited by him to speak before

the Medical Society of Srinagar, at a meeting held in the Veterinary College; and the combined group overflowed the hall. Decorated shamyanas, or tent tops, were erected on the grounds outside for the surplus. A few members of the United Nations and WHO teams on duty in Kashmir also attended the meeting. The venerable colonel presided and introduced me to the assemblage as a "distinguished visitor, a brilliant American surgeon and a very rich one."

One of the veterinary doctors who preceded me reported the occurrence of a widespread panic in a distant mountain area, occasioned by the fear of rabies caused by consuming the meat of sheep killed by a "mad wolf." Investigation showed it to be a case of mass hysteria: no one had died. Indeed, actually no one had become ill. The speaker stated that the disease could not be contracted by eating such animals "but it has been reported," he said, "to have been transmitted to the young in the uterus by a rabid mother, in rare cases."

There is no medical college in Kashmir at the present time. Students are sent to attend colleges in India. One of the doctors had just returned from a postgraduate course of study in England and was very enthusiastic about his experience abroad. Another had traveled in Russia quite extensively, and propounded the good he had seen there to anyone willing to listen.

I was invited to a Kashmiri dinner and a visit to a small hospital, privately owned, and operated by the truly heroic and saintly couple who acted as my hosts for a day. They were toiling under great difficulties, having the barest necessities in the way of equipment but serving the needy unstintedly, justifying the poor services of the institution by saying philosophically that it is far better than the conditions these people have in their homes. And, of course, they were right. I anticipate that their hospital will in time grow to more modern proportions. The story of the couple reads like an epic of Indian antiquity. The doctor, I learned from friends, had had the misfortune to lose his whole family when his house had burned down during his absence from home a few years ago. His wife, three lovely children, his servants and even his two dogs were burned. The sudden shock of the tragedy made him almost lose his mind. For some time he entertained the idea of migrating to some other part of the world, far, far away from the scene of his sorrow or, better still, to renounce the living, retreat to the waiting arms of the giant Himalayas like some of his Brahmin ancestors, and pass the rest of his earthly existence in communion with God.

Then he met a young girl graduate of the Lady Harding Medical College in New Delhi. She, with that love which mother Eve has passed on to her kind in all climes, was able to convince him: "It is simple to be a saint in the secluded hill and deep peaceful forest, but it takes much more saintliness to be a man among men." It was better to serve humanity in the name of the lost family than to waste the precious years of life in seclusion and inactivity: "God has enough angels to glorify His name, night and day. He does not need man to praise Him. Man does better praise by serving his fellowmen." They worked together for a time and in time they were married. They founded the small hospital which is dedicated to the first wife, whose name adorns its portals and proclaims in noble tones the life of service and sacrifice for a woman by a sister woman.

Against the mild objections of my friends, who warned me of the discomforts of the journey, I returned from the lovely vale of Kashmir by car over the mountain roads to the city of Jammu. I had enjoyed crossing Switzerland a few weeks before and did not want to miss the beauty of the mountains by flying over them. The road to Jammu is the same one used by the old Mogul rulers when they traveled to and from Kashmir in the hot Indian weather. Today, it takes from twelve to fifteen hours, with a few brief stops for tea and meals. The car climbs to some 24,000 feet, to the summit of the pass. The winding, ascending and descending road leads through scenes of breath-taking beauty among the lofty, wooded, majestic mountains, with their deep gorges and sparkling streams. One meets shepherds watching their flocks far away from crowded civilization, or notices some seemingly lost hamlet clinging to the slope of a high mountain where some man is plowing a small acre or a barefoot maiden is seen gracefully carrying jars of water up a ribbon-like footpath to her simple thatched mud hut. I shall never forget those hours!

Returning to Delhi by plane from Jammu, I spent another few weeks there seeing friends and meeting various leaders of the nation. I had luncheon with Pandit Jawaharlal Nehru, the Prime

Minister of India, at his official residence; had a long talk with Babu Rajendra Prasad, President of India, at the old vice-regal lodge where he resides; called on the Vice President, Sir Sivapelli Radhakrishnan who has seen us in Detroit—one of the greatest living philosophers; and had an interview with Maulana Abul Kalam Azad, Minister of Education, a man of ripe judgment and great literary accomplishment—a man I have long wished to meet. These were days that were rich in experiences for me, a poor village boy whom fortune had favored. One of the memorable events was a dinner at the home of Dr. Sushila Nayyar, Health Minister of Delhi, who had spent several days with us in Detroit a few years ago. She had been private physician to Mahatma Gandhi, living in the ashram for some years before his assassination. I had looked forward to meeting her again and was not disappointed. She detailed to me the health problems of the area and the methods being used to meet them. Through her, I met the Director General of Health Services of India, Colonel Lakshman, a tall and impressive appearing gentleman who belongs to the progressive Christian community of South India, known for its producing efficient and capable leaders.

The time was running low. Before my departure, Dr. Tulsi Ram, my pious, unassuming and gracious host, arranged for me to meet the Delhi Medical Association. The meeting was well attended, and imagine my surprise to find that the presiding officer for the occasion was Dr. P. N. Kapur, Chief Medical Officer of the Eastern Indian Railways—another of our Detroit visitors. I saw numerous friends in the audience and felt quite at home. One notable difference was that there were quite a few women doctors present, more than in our American medical meetings; this is due to the fact that, generally speaking, Indian women prefer to be treated by women doctors. I was to address this meeting; these doctors had come out to hear what I had to say.

This was a real responsibility. Traveling throughout the country, one cannot escape the feeling of criticism which the Indian feels toward America and things American. Is it due to jealousy or to the lack of proper understanding and interpretation of these "things American"? Possibly both. Because of this, it was my constant effort, whenever I was asked to speak, to bring to my audience the true America as I have known it for the past thirty-four years. To the medical groups, I briefly outlined the basic requirements and standards of American medical education, beginning at the beginning and making the necessary comparison. I told of high school, premedical and medical studies, of internship, residencies, boards and fellowships leading to registration and hospital appointments. I spoke of the hardships and documented my words with not only my own personal experiences but those of my American classfellows: somehow the rest of the world, and especially the Indian, has the mistaken idea that all Americans are born with the silver spoon and in special favor of the gods. I told of the hanging up of the shingle and the wait for patients and success, the average incomes and the tremendous spirit of unity and sacrifice among the nobles of the profession in America—and of the need for combined efforts in India. I told of the health conditions in America—not in the present tense at first but in the past—and of the methods that had been used in order to achieve what exists here now; I told also of the American hinterlands where perfection is not yet achieved and where the struggle is to be compared with that in other countries; and I explained carefully that American movies do not at all present, nor mean to present, American life.

Then, I proceeded to talk of American life, of the common everyday variety of American man the doctor meets in his office. I spoke of his good points: straightforwardness, reliability, punctuality, industriousness, family-mindedness and community-consciousness. I spoke, too, of his simplicity and sensitivity, his roughness and crudeness as attributes and manly virtues—and I spoke of his superstitions and phobias. In short, I presented Americans as people, not unlike Indians—but pointed to the spots in which each might aspire to higher levels.

On this occasion in Delhi, when I closed my remarks, the doctors rose to their feet and applauded long and enthusiastically. They gathered around me afterwards and were extravagant in their expressions of appreciation. One of the women doctors, who seemed to be a European, came through the crowd to meet me, introducing herself as Dr. Birch. I had heard of her all over the country; principal of the well-known Lady Harding Medical College for Women, in New Delhi, she is from Chicago. I told her I was sorry I had not known she was there—perhaps

I might not have been so outspoken about Americans.

"I'm glad you did not know," she answered. "It would have been a great loss if you had changed anything you said." And she invited me to the college the following day. She is a fine person and a capable one.

(Above) Main Building, Lady Harding Medical College and Hospital for Women, New Delhi, India. (Photo by Dr. Tulsi Ram.)
(Left, below) The marble statue of Lady Harding, the founder and patron saint of Lady Harding Medical College and Hospital for Women, New Delhi, India. (Photo by Dr. (Miss) Vimla Chowdhary.)
(Right, below) Two lovely medical students on the steps of the marble statue of Lady Harding. (Photo by Dr. (Miss) Vimla Chowdhary.)

The college is located on vast grounds and has many buildings, some of which were then under construction. With its attached hospital, it is managed entirely by women doctors, for female patients only. The story of its founding is intriguing. Lord Harding, when he was Viceroy, was once riding a caparisoned state elephant, after the fashion of the mogul rulers, through the streets of Delhi. Suddenly, someone threw a bomb from a window along the route. It exploded in the howdah, killing the mahout. The Viceroy was injured slightly, but Lady Harding escaped unhurt. In the days that followed, the Vicereine received many sincere messages of sympathy and prayer from the people, especially from the Indian women, for her husband's complete and speedy recovery. Many of the letters contained gifts of money "to defray the expenses" of the Viceroy's injury. It is said that Lady Harding conceived the idea to use the money as a starter for a medical college just for the education of women, and that she approached the then rajas and maharajas of the country asking them to contribute funds for this purpose. They responded with their proverbial munificence; the college was built and will endure to perpetuate the memory of a noble woman. Her marble statue stands between the main building and the student hostel. There she sits, an embodiment of grace, refinement and aristocracy, a patron saint to the lovely young ladies of an alien race. And when the charming girl students walk by her in their white coats, carrying stethoscopes, she appears to be watching them with a bored sort of indulgence intermingled with pride and affection.

The students for Lady Harding College are taken from all over India, about thirty-five every year. To qualify, a student must have passed in First Division, the F.Sc. (faculty of science) examination or have a B.Sc. degree. Only four or five candidates are accepted from each state—just the top few. The course of study lasts five years and leads to the M.B., B.S. degree. Students must live in the hostels or dormitories provided on the grounds, in order to give undivided attention to their work.

I met Dr. Birch the next day on the verandah leading to her office. As we entered through the arched doorways, a uniformed and barefoot servant appeared from nowhere and placed fresh flowers on her desk. Another tiptoed in with her morning mail on an exquisitely carved silver tray, and then another slipped in and announced coffee. I made mental comparisons, instinctively, thinking of her in a Chicago office or even thinking of a dean's or college president's office in Chicago, Detroit or Ann Arbor. She must have understood my thoughts for she is a keenly intelligent woman; she smiled enigmatically. Coffee in the office of her Indian Assistant, and the extensive tour of the college, took two hours.

In one place, walking across the grounds, I noticed tall grass that needed attention. When I remarked at the untidiness, she explained that the

grass is allowed to grow and is then auctioned to grass-cutters who gather it and sell it in the city market to people for their cattle. It brings in about 100 rupees or so annually, and the grass is saved, not wasted. Dr. Birch added that this is a general practice since the country has become independent, that the saving of the grass for animal consumption goes along with the program of added acreage for agriculture.

I was drawn to inspect a new and well-kept college chapel. It was used not only by the Christian students but also by others, for worship and prayer. A little further on, near her official residence, we saw a modern and adequate swimming pool. It had been the scene of a tragedy a few years before when one of the students had drowned in it. The sorrow still seemed to haunt the surroundings as we walked along, our voices dropped to low tones. Throwing off the mood in a moment, Dr. Birch told of a complication she had had to settle concerning her living arrangements. The official residence or kothi, meant for her as head of the college, was far too large for her alone. As there was a shortage of housing, she gave it to two of her professors with their families, and herself moved into the smaller one next door. Her official family was displeased at her for what they considered a loss of prestige; the head of the college must reside in the big bungalow. No amount of explanation could make them see her point. The matter reached the American Embassy and there it rested, no longer bothering her.

In the far corner of the grounds, I spied a ruin and asked about it. "It is some sort of temple," she thought, "there are temples everywhere here, you know . . ." It looked more like the architecture of a Moslem mosque than a Hindu temple, and I felt impelled to have a look at it. As we walked toward it, passing a nameless grave that stood nearby, the doctor confessed that she had been curious about it but had been warned not to venture near it because it was said to be infested with snakes and jackals. We picked our way across the pile of rubbish at its entrance, and I found that it was a neglected mosque, "in tears for want of worshippers"; its courtyard was littered with debris and choked with tall weeds. Written across its brow in caligraphic Arabic script was the Kalima or Moslem creed: "God is One and Muhammad is His prophet." Beneath this was the injunction: "No one may enter this holy place except in bare feet." There was a faint stir inside and on investigation we found that a family of Chamars, the lowest of the untouchables, had set up housekeeping there. The doctor was touched by my concern and voluntarily said that the mosque would be cleaned up and made available for the Moslem students in attendance.

As I was leaving the college, I asked her if she liked it here in India working among an alien people. She agreed that she did, but not with much enthusiasm. When I asked if she found the students or patients any different from those she would have met in the States, she answered that largely she thought that students are the same everywhere.

"But the patients, almost all of them, seem very undernourished, chronically harboring some disease or other and chronically anemic. The majority of them have such very low blood counts: hemoglobin is frequently as low as 10 per cent! And relatives here are quite troublesome. Everyone crowds around the patient to prove they love her but no one really makes much effort to help her. The reason I was late this morning was that I was waylaid by the father of a little boy who is suffering from a fatal type of blood dyscrasia. I have talked to the father three or four times already making it clear that there is no cure for the disease. We are keeping the child alive by repeated transfusions. The father knows the situation, yet he is always lurking in some corner: 'Just a few minutes of your valuable time' he pleads. And we go over the same ground again and again—for two or three hours at a time. When I ask for blood donors, they all vanish like frightened rabbits, except for the poor old mother. She is a pathetic old lady and very anemic herself."

Suddenly her eyes sparkled: "Oh there is my favorite old man. I just love him. He is such a dear . . . see him?" Her face shone with the regard a person of position feels toward simple unspoiled nature. An old man, an outcast, the lowest on the rung of her official family, who had grown old with this great center of medical education, came hugging the corridor wall, looking furtively at the great lady chief. As he shuffled past us, he salaamed obediently, touching his gnarled hands to his furrowed and turbaned forehead. She acknowledged his greeting with a palpably warm response. The old man glowed from the attention and slowly disappeared down the hall.

"He is a darling old man. At his hut he is always taking care of some sick or starved animal—last week he had a lost mongrel puppy he was nursing." Just a woman's fancy, I mused; a fortunate old man, he, to have the great foreign

American doctor take fond notice of him. And I thought of the millions, more worthy perhaps, who could appreciate her approbation. She semeed to read my mind again, for she said, "They are wonderful people, these Indians. All of them." There was a tenderness in her voice such as one has when speaking of those one loves but does not feel he belongs to—an objective love, if such a feeling can be. "Last time I was home I spoke often to my friends of how good the Indians are."

"But what of the appalling poverty and the human misery; the dirt, the diseases, the unnecessary deaths?" my American friends ask when I speak reminiscently of home.

Yes, yes. It is all there and much more. But we must look ahead, must realize that these new countries are changing from their old ways with remarkable speed, and must remember that even in America some new ideas did not take hold easily; had to be instrumented by governmental action. These countries now can control their destinies as never before in this modern era. We must encourage understanding and must try to understand. Besides, my heart and mind are so full of the good and fine things I have seen and experienced, that I cannot find room to dwell on the bad—though I am not unaware of it, just as I am not unaware of it here in my adopted land.

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COMMUNICABLE DISEASE CONTROL

(Continued from Page 549)

attempt to prevent disease and, when it is not preventable, to treat it successfully. However, prevention or treatment is interference with a biological relationship, that between a parasite and its host operative for all infections. Interference with this relationship cannot be undertaken lightly. Organisms pathogenic for man, whether they be bacteria or viruses, are ubiquitous and for the most part will likely be with us interminably. For certain diseases like diphtheria, maximal control is readily attained and in the instance of failure early recognition and prompt treatment leads to a desirable end. In many instances, however, the host-parasite relationship is exceedingly complicated and interference is not without its penalty. As Anderson[1] states, "The parasites will tend, in time, to find a method of circumventing our form of interference. The newest antibiotics placed in our hands are the means of making profound changes in the microbiology of man. Let us see that we use them with thoughtfulness."

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Pharmaceutical Manufacturer and Physician

Partners in Progress

By Theodore G. Klumpp, M.D.
New York, New York

THE WELL-KNOWN painting entitled "The Doctor" depicts a physician beside the bed of a child. A dignified, professorial gentleman of the old school, he sits with chin in hand anxiously peering at the child waiting for the crisis to pass. The pose is typical of the times—there was little else he could do but sit and wait. It was his misfortune to have been born just before the beginning of the most fabulous period of all time, a period set apart from all the centuries that have gone before it by one overwhelming force—scientific research. All of a sudden, in the twentieth century, the idea of scientific research caught fire. To be sure there have been many truly great scientific investigators throughout the span of recorded history, but always before they were lonely voices crying in a vast wilderness of ignorance. In this era, as never before, large numbers of individuals have seen the vision of research and what it can do to make this a better world in which to live. For instance, more progress has been made in the conquest of disease and the prolongation of life than had been accomplished in the entire 999 centuries of man's previous existence on earth.

The most eloquent summation of what has been accomplished can be expressed in terms of life expectancy which has moved upward from forty-nine years in 1900 to almost sixty-eight in 1953. In 1900, among any average group of 1,000 persons, one could count on seventeen dying that year. Today only nine of that same number will depart this world. Among infants, the revolution is even more marked. At the turn of the century, of every 1,000 babies that survived birth, 162 died within the first year, whereas today less than thirty succumb. At the beginning of the 20th century, 7,000 children died every year of whooping cough. Last year only 310 died of this disease. Looking at it from another angle, we have seen the almost complete elimination of such killers as cholera, yellow fever, smallpox and the plague. Diptheria, scaret fever, typhoid fever, typhus, tetanus, rickets, Rocky Mountain spotted fever, pernicious anemia, Addison's disease, meningitis and other diseases have lost their deadly sting. Tuberculosis was responsible for 194 deaths per 100,000 population in 1900, but only 10.6 in 1954. In half a century, the greatest reaper of them all—pneumonia—has been all but defeated as witnessed by the fact that the death rate has declined from 152 per 100,000 to twelve. Even among the survivors, at the beginning of the century it took an average of three months' wages to pay the hospital bills resulting from a case of pneumonia. Today the disease is often cured at home at an average cost of only five hours' wages for the miracle drugs. Only forty years ago, one of every four persons subjected to a major operation met his doom, whereas today only one in a hundred succumbs, and if that still seems high, let us remember that surgeons can now operate where the risk is great, whereas a few years ago they would not have dared touch many patients that now have been given at least a fighting chance to live.

These spectacular gains have been achieved through the collaboration of the medical profession, pharmacy, and the pharmaceutical industry.

In no other field of endeavor has this kind of partnership been more productive of good for mankind. In all of history, it is one of the brightest chapters of industry and a profession working together to their mutual interest and for the common good. Fifty years ago, collaboration of this kind was impossible because our pharmaceutical industry had not matured enough to be worthy of it. Only twenty-five years ago, it would have been tantamount to professional suicide for any self-respecting physician or scientist to take a job with a drug house or even work with it in clinical investigations.

Today all that has changed. We both have a keen sense of our mutual dependence and a whole-

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Presented at the Michigan Postgraduate Clinical Institute, Detroit, March 10, 1955.

Dr. Klumpp is president of Winthrop Laboratories, Inc., New York City.

some reciprocal respect has gradually come to replace the distrust and misunderstanding that once existed. My appearance on this program is eloquent expression of the change that has taken place.

But our job has just begun. The gains above recited resulted largely from our accomplishments in one sector of the ugly panorama of diseases that afflict mankind. There are still bacteria that haven't been mastered, and it is likely that the appearance of new mutants will keep us busy in this field for a long time. Although the conquest of one of the meanest diseases of them all—poliomyelitis—now appears within sight, there is still a whole host of virus diseases that are as yet untouched. Cancer is still a murder mystery to which there is not a single basic clue. We have a good palliative for diabetes, but we still don't understand the basic pathogenesis of this disease. The death rate from it remains essentially unchanged. A whole host of endocrine, mental, and neurological disturbances still defy our best research brains. Arteriosclerosis, the greatest killer of them all and the ultimate limiting factor in our life span, is still beyond our grasp. There is no doubt that our scientists have plenty left to do, and so long as mother nature fails to create and maintain perfectly functioning bodies, she will need the combined research help of our physicians and the pharmaceutical industry. But the most significant and encouraging aspect of medicine today is the fact that at long last we have learned how to go about picking the lock of nature's hidden secrets.

Opening these doors is not a one-man job. In the future, more than has been the case in the past, new discoveries will emerge as the culmination of the combined efforts of many workers covering the scientific spectrum from physics and chemistry to clinical medicine. While the pharmaceutical industry is well equipped to handle many of the laboratory phases of the work, in the end it must all be turned over to clinicians at the bedside for the final and decisive steps.

I know that there have been questions in the minds of many physicians, clinical investigators, and the heads of their institutions as to what posture they should assume in collaborating with pharmaceutical houses. Having been on both sides of the fence, it is sometimes amusing for me to see how it varies. In general, the relationship is a frank, wholesome, friendly one, as between two partners that trust each other as dedicated men working together in a common cause. Sometimes our clinical counterpart can't quite bring himself to trust anyone from a commercial concern, and he deals at arm's length and holds his cards close to his chest. Once in a while we are received as a bishop might welcome some woman from a house of assignation. In some of our older and more conservative institutions, they try hard to be good fellows but with a sense of guilt as if they were slumming. But on the whole, there has been a progressive improvement in our relationship and understanding, and the change for the better has been noticeable even in the relatively short time that I have been a member of the pharmaceutical industry. It has grown as our industry has come of age and by our actions has increasingly earned the respect and confidence of practicing doctors.

Let us, for a moment, turn to another aspect of our relationship where our industry has not yet won the understanding of medicine.

Never before in the history of medicine have there been so many therapeutic agents placed at the disposal of the practicing physician. If the artist's conception of the old-time doctor was that of a dignified old gentleman in frock coat with his chin in his hand, the typical pose of the present-day doctor is something quite different. Today he might be pictured as a slightly distraught and perplexed man in white sitting at a desk piled high with drug brochures and beside him a wastebasket filled to overflowing with drug advertisements, most of which are in unopened envelopes.

All this may seem like an abomination to the doctor of today. Actually, what seems to be a torrential over-abundance—and I agree in some respects it is—is merely the outward manifestation of the greatest decade of industrial vigor and productivity this world has ever seen. For all of its woes, I would rather be deluged with more drugs than I knew how to use than to be forced to sit at the bedside with my chin in my hand because there are not enough drugs to save lives or at least bring comfort, ease, and relief of pain to my patients.

I would rather be a little bewildered in trying to choose an automobile from among 150 odd good models that are available than to be forced to buy a mediocre government-approved and

standardized Volks wagon. I would rather be stacked up over Detroit for two and a half hours in a 1955 stratocruiser than to have the sky all to myself in something like the Wright Brothers' original flying machine. On all sides, we have the same problem. Let's not complain because the goose lays so many golden eggs. For one thing, it will do no good to complain because nothing will stop the momentum of present-day industrial creativity except, and God forbid, another war or a depression. To bring about a better adjustment to the current situation, it is imperative that physicians exert every effort to learn more about the medicinal tools that are offered for their use. Only in this way will they be able to select and reject wisely and convert the crude ore of this golden age of invention to the fullest benefit of their patients. Perhaps even some of those circulars and brochures that are so quickly consigned to the wastebasket are worthy of a little more study towards this end. As time goes on, "The intense competition among pharmaceutical manufacturers makes it certain that ultimately only the superior products will be prescribed by physicians." This was said by a distinguished physician, Dr. Elmer Severinghaus, who is now a member of our industry.

So long as I have had anything to do with drugs, nomenclature has been a problem. This was as true when I was Secretary of the Council on Pharmacy and Chemistry as it is now. For a long time, it was not clear to me why drug houses chose such weird and sometimes fantastic names for their products, and why they didn't just give up and use generic names coined by the Council on Pharmacy and Chemistry, the U.S.P., or even the Food and Drug Administration. It wasn't until I was finally called upon to actually baptize a number of new drugs that certain facts of life became evident.

For the sake of this discussion, I am certain that I am safe in assuming that we don't want socialized medicine any more than we want to do away with our American system of free enterprise. If this is true, then I can assure you that the brand name or trademark is here to stay. If you will stop to think about it a moment, you will recognize that our entire system of free enterprise is in fact based on brand names. The two are inseparably interwoven. When a manufacturer places a new drug on the market, he wants to be quite certain that the physicians will recognize it and hopefully prescribe it. He therefore gives it a distinctive trade name, and he spends considerable sums of money making it known to you. This trade name is protected by law, and no one can legally simulate it. If the drug is a good one, and the manufacturer has done a good promotional job, you know about it and prescribe it. If it does what you expect of it, you continue to prescribe it. The manufacturer who may have spent hundreds of thousands, and sometimes millions of dollars in research developing it, and a few more hundreds of thousands of dollars making it known to you, gradually gets his investment back and sometimes after a year, sometimes longer, if he is lucky, he begins to make a profit, part of which goes back into research. But many drugs, even good ones from your standpoint, fail to make a profit. The successful ones, from our standpoint, pay for those too.

On the other hand, if a manufacturer puts out a non-patented new drug under a generic name, he is confronted with an entirely different situation. Almost immediately a whole array of drug houses, most of which contributed nothing to research or the task of making the drug known to you, market the same article under its generic name. Your prescription for the generic item is as likely to be filled with any one of the several secondary products as the original. The investment of the original manufacturer in the product is diluted to the point where he fails to get a reasonable return. If this occurs often enough, he will be unwilling, indeed he will be unable, to spend money on any research that leads to a drug that must carry a generic name.

You may ask why not market the drug with a generic name followed by the name of the manufacturer, such as Belladonna—Winthrop? There are good reasons why this doesn't do the trick. Surveys bearing on this point show that doctors more often than not fail to specify the company's name and even when they do, a large percentage of such specifications are lost when the pharmacist fills the prescription. Another important objection to this practice is the fact that while the active ingredient described by the generic name may be identical in the products of different manufacturers, other features of the product may differ. Among other things, there may be differences in solubility, rates of disintegration, flavoring, pH, preservatives, alcohol content, vehicles, and other characteristics that may influence the be-

havior and action of the article. In addition to this, patients are often disturbed when the characteristics of the preparation they have been used to are inexplicably changed in having a prescription refilled.

It may have occurred to you to ask why manufacturers don't use generic names for drugs that are patented. The answer to this is clear. In the first place, patents often take a long time to issue and we don't always know that there will be a patent when we name a new drug and place it on the market. Although five houses have been marketing the antibiotic "tetracycline" for some time, the patent is still in litigation. A competitor of ours had a new drug on the market for over two years before the patent issued to us. Besides all this, drug research is so intensive and so many concerns are concentrating on the same objectives that we are finding it increasingly difficult to predict who is going to hit the tape first in the race for patents. I have cited a few objections to show that generic names are no more suitable for patented drugs than others. There are additional equally important arguments but time does not permit me to dwell on this any longer.

When you look at the names that pharmaceutical manufacturers select for their preparations you have undoubtedly thought at one time or another, "How can they be so silly?" And some of them are downright impossible. But believe it or not, there is a reason for this too. When we wish to select a name for a new product, every executive of the company, from the president on down, is asked to suggest all the names he can think of that may be suitable. The chemists are similarly asked to propose names that bear a reasonable relationship to the chemical structure of the compound in accord with the well-established principles of chemical nomenclature. A list of possible names, often a hundred or more, is prepared in order of their acceptability. A search is then made of registered names in the U. S. patent office and other indices of trade names. Almost invariably, we find that our choice names are too close and similar to other names in use. Time and again we have gone through lists of a hundred or more suggested names without finding one that will pass muster. From here on, we begin getting into the ridiculous. We send out a call for additional suggestions and start juggling letters around trying to manufacture a name. Sometimes, but rarely, we are lucky and find a good name that will do. At other times, we adopt a name and have it in use for years, as was the case with our name "Pluravit," when someone writes in and tells us we are infringing his name and would we please discontinue it or he will sue us. In my experience with difficult problems, I have found the search for good names the most baffling, frustrating, and unrewarding part of my work. And I know the members of the Council on Pharmacy and Chemistry of the AMA, the United States Pharmacopoeia, and the Committee on Nomenclature of the World Health Organization feel the same way about it.

In closing, I would like briefly to refer to one overriding problem, the importance of which cannot be overemphasized. It is regrettably true that the public has a deeply ingrained impression that medical care and the drugs that are a part of it, cost too much. This, in my opinion, is the basis of the most serious threat to the practice of medicine as we now know it. It is a challenge to free enterprise in the practice of pharmacy and the manufacture of drugs. Public attitudes respecting the cost of medical care and drug prices can, over the long pull, substantially alter public attitudes about socialized medicine.

Today a few pills costing perhaps several dollars are often the equivalent of what used to be a perilious illness with long disability, loss of earnings, hospital and nursing expense and a convalescence that sometimes lasted for months.

For instance, Dr. Ivor Griffith made a study of the cost of a case of pneumonia in a Philadelphia hospital in 1927. He found that the average bill of the hospital, doctors, and nurses amounted to $358.00 and the duration of hospitalization averaged five weeks. During this time and a subsequent convalescent period, the loss of earnings brought the total cost of the illness up to approximately $1,000—and that was when $1,000 really was $1,000. In 1953, the average duration of lobar pneumonia was less than two weeks with no period of convalescence required. Most cases were treated at home with antibiotics costing the patient approximately $15.12, if penicillin was used, and $29.68, if one of the broad spectrum antibiotics was employed. While we have no comparable figures for loss of earnings, it is nevertheless evident that a great economic saving has been achieved. Added to this is the fact that many potential cases never get to be full blown

pneumonia because of the prompt use of antibiotics. Most important of all is the fact that the undertaker used to get one good funeral out of every five cases of lobar pneumonia, whereas today we have deprived him of almost all of this business. Perhaps it just isn't human nature to feel deeply grateful for having been spared a perilous illness that everyone knew wasn't going to happen. In the old days, when patients were snatched from death's door after a period of mortal peril and suffering, there was less complaint about the cost of medical care.

There are some 40 million cars on the road. Today people are perfectly cheerful about spending $2,500 to $5,000 to replace cars that we know from World War II experience are good for several more years of service. And yet, those same people cry to high Heaven if they are charged a small fraction of that amount for the medical services that may save their very lives or at least make them worth living.

You and I know that, on the whole, drug prices have advanced far less than those of most other commodities during the past fifteen years of inflationary pressures. Actually, the per cent of disposable personal income spent for medical care, which includes drugs, was less in 1952 than it was in 1939 and only nine hundredths of 1 per cent greater than it was in 1935. The public spends far less for medicines than it thinks. In 1952, the per capita consumption of drug preparations and sundries was $10. Imagine, just $10 a year, on the average, to keep well and to prolong life! How does this expenditure compare with others about which the public remains silent? Here are the per capita expenditures in 1952 for a few other products and services:

Alcoholic beverages	$55.00
Tobacco products	32.00
Interest on personal debt	12.50
Auto repair, greasing, washing, parking, storage and rental	11.00
Admissions to specified spectator amusements	10.00

And here is a comparison that should make us wince. Whereas, personal consumption expenditures in 1952 for drug preparations and sundries amounted to $1,623,000,000, death expenses (funeral and burial service, cemeteries and crematories, monuments and tombstones) cost the American people $1,218,000,000. We spend practically the same to bury our dead as we do to stay alive —but we seem to object to the cost of staying alive. The irony of it is that we can't escape the expense dead or alive. The statistics I have here cited are official figures. Authority for them is the U. S. Department of Commerce.

These figures, if known to the public, could produce a vast change in its opinion concerning the cost of medicines. Yet they do not tell the whole story. They say nothing of the savings in health and in hard dollars which the American people have made by virtue of the contributions of scientific research. Indeed, I would venture the guess that the advances in therapeutic agents and in medical care during the past decade alone account for far greater economic gain than is represented by the total cost of medicines today.

We have almost completely ignored this citically vital public relations job, on which the whole future of American medicine, pharmacy, and the pharmaceutical industry may depend.

It has been a great privilege to have a place on this program as a representative of the pharmaceutical industry. Your kindness in asking me to participate is recognition of the fact that we have something in common, and the common purposes we serve are the elimination of disease, the alleviation of suffering, and the prolongation of life. Can there be nobler objectives? It is encouraging to me, as I know it is to everyone in my industry, to realize that the physicians of Michigan look upon us as partners in progress. Working together as partners I have the deep conviction that what is past is merely prologue to the greatest era medicine has ever known.

A solid ovarian tumor is probably cancerous.

* * *

If *painless* nodules are found in the pouch of Douglas, the patient probably has a cancer of the ovary.

* * *

The most important single fact in clinically identifying a growth in the ovary is the patient's age. *If she is over forty, she is more likely to have cancer.*

* * *

The best tool to combat the present high rate of inoperability of ovarian tumors is the periodic pelvic examination.

Food retention, regurgitation and constipation are often the earliest symptoms of an obstructive pyloric carcinoma.

* * *

If the physical condition or age of the patient contraindicates any type of surgery, radiation therapy may give temporary relief from intestinal obstruction in some instances.

* * *

Lesions of the pancreas rarely respond even temporarily to external irradiation or implantation of radon seeds.

St. Luke's Hospital Clinico-Pathologic Conference

Edited by Chandler Smith, M.D.
Saginaw, Michigan

Clinical Record

THE patient was a white male infant, two months old, who was well until 7:00 p.m. on the day of admisison to the hospital. At that time, while being fed, the baby suddenly assumed the position of opisthotonos, the eyes rolled upward and remained momentarily fixed, and tremors were noted in all four extremities. This convulsion lasted about one minute. Shortly thereafter, a bluish red mottling of the skin of the entire body was noted. There was no crying or vomiting, and the temperature was normal. After this convulsion, the baby was relaxed and less alert than usual, but neither lethargic nor hyperirritable.

The gestation period and delivery of this baby had been normal and were without complications. Life began with a lusty cry, muscle tonus was normal, and there were no deformities. The baby progressed normally, and there had been no illness or injections. There had been no previous convulsions and there was no history of falling or injury to the head.

There were three siblings. Two boys, ages five and four years, were in good health and had not been sick. One baby girl, twenty-two months old, was born with congenital deformities that consisted of dislocated hips and shortening of both lower arms. All children were normally alert and none had experienced convulsions. The mother and father were well and neither had had symptoms referable to the central nervous system. A sister of the father had experienced severe headaches, and death at the age of forty years was clinically attributed to epilepsy or to brain tumor.

The baby was brought to the hospital at 8:30 p.m. Examination revealed a well-developed and normally hydrated infant in no distress. The respirations were 26 and the temperature was 99.3 degrees (F.). The head was of normal configuration and the scalp was intact without lacerations or bruises. The anterior fontanelle was soft. The pupils were round and equal and the reactions to light and accommodation were normal. There were no extra-ocular muscle paralyses. Papilledema and retinal hemorrhages were not detected on funduscopic examination. The ears were not remarkable, and no bulging, redness or bleeding was seen. The neck was supple. The nose and throat were not remarkable. There was no enlargement of cervical lymph nodes. Auscultation and percussion of the lungs were normal. The heart was not enlarged, the rhythm was regular, and no murmurs were heard. The abdomen was soft and no masses were palpated. The external genitalia and extremities were normal. The biceps, triceps, and patellar deep tendon reflexes were active, equal, and normal. Painful plantar stimuli elicited prompt withdrawal. The Babinski reflex was not elicited. The neck and all extremities were supple.

The parents were advised to return home as the baby appeared well and the history was suggestive of a breath-holding episode. However, before this could be undertaken, and approximately twenty-five minutes after admission, the baby suddenly experienced a second convulsion, with rigidity and mild tonic and clonic movements of all extremities. This was accompanied by pronounced opisthotonos with backward displacement of head and feet. The eyes appeared prominent and were momentarily fixed in a straight forward direction. The anterior fontanelle was now noted to be distended. This convulsion lasted about one minute and was followed by carpo-pedal spasm lasting ten to twelve seconds. Mild inspiratory difficulty was noted, and the skin revealed slight cyanosis and pronounced bluish red mottling. Approximately twenty minutes later, a similar convulsion was again experienced, and this was also accompanied by respiratory difficulty, mottling of the skin, and slight cyanosis.

Hematologic examination revealed 10.8 grams of hemoglobin per 100 cc. There were 3,000,000 erythrocytes and 17,000 leukocytes per cu. mm. Differential count of 100 cells revealed 53 segmented granulocytes, 2 band cells, 41 lymphocytes, and 4 eosinophils. Lumbar puncture disclosed somewhat forceful release of grossly bloody spinal fluid. Crenation of erythrocytes was not seen on microscopic examination. A bilateral parietal subdural tap was then attempted and no fluid was obtained. Radiographic examination of the head revealed a quite sharply defined linear translucency in the right occipital region that was not suggestive of a suture line, and appeared too sharply defined for a vascular channel. This was interpreted as a linear skull fracture.

An oxygen mask was applied, 6 cc. of calcium gluconate were injected intravenously, and caffeine sodium benzoate was given by intramuscular injection. A one-half grain suppository of dilantin was inserted rectally and an intravenous infusion of 5 per cent glucose in saline was begun.

During the next four hours, there were four additional convulsions similar to those described. The infant died at 11:00 p.m. on the day of admission.

Clinical Discussion

Dr. Paul V. Wooley: Review of this record reveals that a clinically well baby develops normally for a period of two months when a sudden dramatic change takes place that is characterized by convulsions and death after a period of four hours. Such a history is suggestive of injury. There were two boys in the family,

ages four and five years, and it is customary for siblings to handle infants clumsily so that the baby could have been dropped. However, the record states that there was no trauma, and I am sure that interrogation in this regard was thorough. We note from the history that a

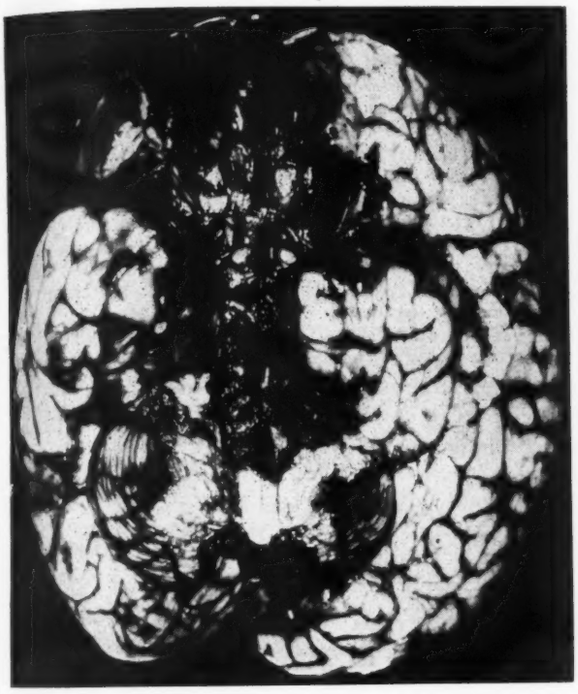

Fig. 1. Recent subarachnoid hemorrhage over base of brain.

baby girl of twenty-two months was born with congenital deformities of hips and arms. This suggests the possibility of a congenital deformity of this baby. However, in my experience, a woman who produces one deformed baby usually passes through a period of sterility of four years or so before bearing a second baby with congenital deformities. The mother of this baby has not shown this pattern of pregnancy, and the history does not suggest that this baby is malformed.

The baby is brought to the hospital, and the physical examination is not revealing. The anterior fontanelle is said to be soft and flat. It would be helpful to have a more detailed description of this observation as this information may be misleading. However, I assume that the examiner was experienced, that the infant was at rest, and that the observation is accurate. It would also be helpful to know the type of resonance elicited by percussion of the skull. The most useful information could have been obtained from the mother at this time and would include her opinion of this baby as to a comparison of behavior, before and after the first episode, strength of grip, and general appearance. The neurologic examination provides no help.

The diagnosis at this time was a breath-holding episode. These are simulated before the age of two months by the temporary alkalosis that results from screaming and over-breathing. True breath-holding episodes accompanying epilepsy and frustration are characteristic of a later age.

The baby now has a second convulsion and opisthotonos is again apparent. The fontanelle is now noted to be distended. This observation is of no value if the baby were straining as distention accompanies such mild exertions as coughing. There was also mottling of the skin which probably represents autonomic stimulation about the medulla.

The red blood count is lower than expected, although interpretation requires correlation with the birth weight. The spinal fluid appears to be under increased pressure and the fluid is red. I do not believe that blood in all of the spinal fluid results from traumatic insertion of

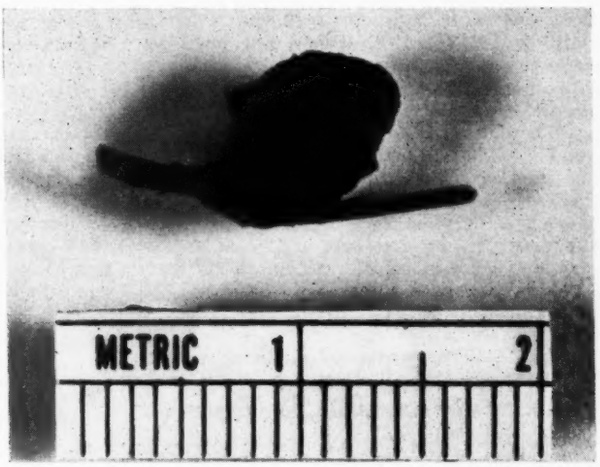

Fig. 2. Saccular aneurysm of left anterior cerebral artery.

the needle. Therefore, I am certain that subarachnoid hemorrhage has occurred. I want to point out that bloody spinal fluid need not preclude estimation of the contents of that fluid. It is simply necessary to repeat the erythrocyte count at the time the spinal fluid is drawn, count the red cells in the spinal fluid, and calculate the dilution of that fluid with blood. The same holds for the leukocyte count or protein determinations, allowance being made in each case according to the factor of dilution. We now come to the x-rays, and I would like to see these.

Dr. H. T. Caumartin: X-rays of the skull reveal a linear translucency at the base of the right occipital bone that is apart from the lamdoidal suture and is too sharply defined for a vascular channel. I therefore believe that this represents a fracture of the occipital bone.

Dr. Wooley: The possibility of skull fracture remains for the reason that fractures in infants retain the appearance of a recent break even though the fracture is old. However, in this patient there is no history of injury, and no soft tissue reaction is apparent on the x-rays or on physical examination at that site. For these reasons, I do not believe that the principal lesion in this infant is a recent skull fracture.

In summary, we have an apparently well baby who suddenly experiences several convulsions and dies four hours after the onset. The bloody spinal fluid under increased pressure establishes subarachnoid hemorrhage. The record states that crenated red cells were not found and indicates that this means that the hemorrhage was recent. Crenation of erythrocytes is a function only of the osmotic pressure of the medium in which the red cells are suspended; only hemolysis with xanthochromia of the fluid measures age of hemorrhage. However, the clinical evidence strongly indicates that the bleeding was recent.

Excluding trauma, there are three other conditions to be considered. The first is pachymeningitis hemorrhagica. This occurs in poorly nourished marasmic babies rather than in healthy infants, and is thus dismissed. Occasionally closure of the ductus arteriosus is delayed, and with this event emboli may be carried

in the arterial stream to occlusion of peripheral vessels. These emboli are often multiple, and lodgement usually occurs in renal, popliteal, or femoral vessels. Arterial occlusions of this type are ordinarily accompanied by the localizing signs of ischemic necrosis. In the absence of such signs, this possibility is discarded.

We are left with the congenital aneurysms about the circle of Willis. These are occasionally seen during the first two to three months of life, later at the age of eight to ten years, and then not until after the twentieth year. Premonitory signs are attributed to bleeding into the aneurysmal wall and to pressure of the sac against cerebral tissue. Rupture is sudden, subarachnoid hemorrhage is extensive, and death usually occurs quickly. Although this lesion at two months of age is not seen often, I believe that sudden death frequently precludes hospital admission, and the true incidence of such aneurysms is not indicated by autopsy records. My diagnosis of this case is recent rupture of a congenital aneurysm of the circle of Willis.

Dr. Wooley's Diagnosis

Rupture of aneurysm of circle of Willis.

Anatomic Diagnoses

Congenital saccular aneurysm of left anterior cerebral artery with recent rupture.

Recent subarachnoid and intracerebral hemorrhage.

Dr. J. C. Smith: Autopsy examination revealed extensive recent subarachnoid hemorrhage over the base of the brain (Fig. 1). After fixation, dissection revealed a saccular aneurysm (Fig. 2) of the left anterior cerebral artery adjacent to the communicating branch. The aneurysm was filled with thrombus. Rupture occurred over the superior surface so that the hemorrhage, under systolic pressure, forced perforation through the cerebral tissue into the right lateral ventricle. Blood then flowed freely through the ventricular chambers and issued into the subarachnoid space about the medulla.

It has long been undecided as to whether saccular aneurysms of the circle of Willis are of congenital or acquired nature. Arteriosclerosis has been held to be the cause for the reasons that most occur in adulthood and the adjacent vessels in these cases reveal arteriosclerosis. The prevailing opinion, however, is that these aneurysms, not present at birth, develop as a result of focal congenital defects of the arterial media of the vessels of the circle of Willis at points of branching of tributaries. Because of the absence of formed aneurysms at birth, the congenital nature of the lesion has been difficult to establish. McDonald and Korb[1] cited 1,125 cases reported to 1938 in a review of the literature. The youngest was one and one-half years, and only 11 per cent were under twenty years. This review indicates the rarity of the present case, and the latter supports the prevailing opinion that the saccular aneurysms are of congenital nature.

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ARTERIAL REPLACEMENT WITH NYLON PROSTHESES

(Continued from Page 523)

Summary

Non-viable tubes constructed from nylon fused with polyethylene were inserted as vascular grafts in the aortas of fifteen dogs and the femoral arteries of five dogs. It was found that these tubes remained patent in fourteen of fifteen aortic grafts (93 per cent), but in only two of five femoral grafts (40 per cent). By gross and histologic study it was noted that the non-viable tubes eventually became incorporated into new fibrous living tubes. These acted as satisfactory grafts and ultimately became lined with endothelium. Patency and lack of aneurysm formation were observed as long as six months after introduction of a graft.

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Detroit Surgical Association

Meeting of January 23, 1956

DETERMINATION OF CUTANEOUS BURN DEPTH IN EXPERIMENTAL ANIMALS BY THE USE OF RADIOACTIVE PHOSPHORUS

By James E. Bennett, M.D.,

Junior Clinical Instructor in Surgery, University Hospital, Ann Arbor.

This study attacks the problem of determining cutaneous thermal burn depth by means of parenterally administered P-32 with subsequent external counting over the burned areas of skin. Young swine were used in this study. Small standard contact burns were inflicted on the backs of each animal, utilizing a brass container, through which water was circulated from a constant temperature bath via a circulating pump. Using a time constant of one minute, it was found that burns of superficial, partial and full thickness could be produced by varying the temperature from 52 to 75 degrees centigrade.

Radioactive phosphorus was administered to the animals on the day of burning and/or at intervals of 24, 48, 72 and 96 hours post burn. External counting determinations were then performed over normal skin and each burn. Counts were taken with the probe of a count rate meter held in close proximity to the skin. The uptake of phosphorus consistently varied with the depth of burn. As compared to normal skin, the superficial burns showed a slightly increased uptake, the deep partial thickness burns a slight decrease in uptake and the full thickness burns a very low uptake, usually two to three times lower than normal skin. These differences were presumably due to varying changes in circulation, depending on the severity of the burn.

PATHOLOGY, DIAGNOSIS, AND TREATMENT OF EXTRA-ABDOMINAL DESMOID TUMORS

By Robert H. Ramsey, M.D.

The relatively uncommon extra-abdominal desmoid tumor is a treacherous benign lesion. Failure to be aware of its peculiar pathological traits has led to its mismanagement in many instances.

A description of eight cases is given and diagnostic features emphasized. Differentiation from fibrosarcoma is of prime importance because of pathological similarities and treatment differences. Since the desmoid tumor is a non-metastasizing, but locally invasive lesion, radical local surgical excision is the treatment of choice. If this cannot be accomplished without sacrificing an extremity, incomplete removal is then in preference.

A COMPARATIVE EVALUATION OF URETEROILEOSTOMY AND URETEROSIGMOIDOSCOPY

By Robert M. Whitrock, M.D., Assistant

Professor of Surgery, Wayne University College of Medicine, Detroit.

A comparative study between ureteroileostomy and ureterosigmoidoscopy was carried out in a group of dogs. The ureteroileostomy was established by using a 12 cm. segment of ileum isolated from the gastrointestinal tract 16 cm. from the ileocecal valve and developed as an isoperistaltic Thiry loop. Both ureters were anastomosed into the proximal portion of this loop using the Nesbit mucosa to mucosa technique. The ureterosigmoidoscopy was established by anastomosing a cuff of bladder about each ureteral orifice to the low sigmoid, preserving the intrinsic uretero-vesical sphincter. The study was carried out in three groups of animals.

Group I. Bilateral ureterosigmoidoscopy. The kidney and ureteral preparation revealed gross and microscopic pyohydronephrosis. Blood electrolyte studies demonstrated an early, moderate hyperchloremic acidosis.

Group II. Right ureterosigmoidoscopy and left ureteroileostomy in the same animal. Gross and microscopic examination revealed pyohydronephrosis and cortical abscesses of the right kidney and ureter. The left ureter and kidney were normal. Blood electrolyte studies again demonstrated a moderate hyperchloremic acidosis.

Group III. Bilateral ureteroileostomy. Gross and microscopic examination revealed normal kidneys and ureters bilaterally. Blood electrolyte studies demonstrated a severe, early and fatal hyperchloremic acidosis resulting from the ingestion of urine when the animals licked their ileostomies. This severe, electrolyte imbalance was corrected by preventing the animals from reingesting their urine, although a mild, hyperchloremic acidosis persisted during the postoperative period.

Clinical experiences with the ureteroileostomy in both adults and children was an entirely successful method for the diversion of the urinary tract. There was no evidence of electrolyte imbalance or residual urine in the ileal loops. The patients were comfortable and dry through the use of a glued-on Davol ileostomy appliance.

Meeting of February 27, 1956

GALLSTONES: SOLUBILITY STUDIES

By Robert G. Lutton, M.D., and Alfred M. Large, M.D.

For a long time, it has been known that human gallstones placed in a dog's gall bladder will gradually disappear. This observation has been confirmed in our laboratories, and *in vitro* studies have been performed to determine the effect of human as well as dog bile upon gallstones obtained from the gall bladders of several patients.

These experiments tend to support the view that the concentration of cholesterol in the bile is the most important single factor concerned in the solubility of and probably also in the formation of gallstones, but also illustrate the fact that other substances such as bile salts and lecithin likely play a not insignificant role.

EARLY DIAGNOSIS OF CARCINOMA OF THE CERVIX UTERI

By Esther H. Dale, M.D., Osborne A. Brines, M.D., Gerald S. Wilson, M.D., and Harry M. Nelson, M.D.

Results obtained at the Yates Memorial Clinic have been used as the basis of statistical studies related particularly to the early diagnosis of carcinoma of the cervix uteri. In a series of 15,832 women, carcinoma of the cervix was proved histologically in 0.95 per cent. Papanicolaou smears were a routine procedure in the examination of these women and are credited with primary detection of 42.8 per cent of the cases of cervical carcinoma found in this series, because neither history nor physical examination aroused any suspicion of malignancy in these cases. The exfoliative cytological technique has been found sufficiently sensitive and specific to be a very effective diagnostic aid in cancer detection, especially of the cervix uteri. Some of the statistics tend to refute the prevalent idea that cervical carcinoma involves the middle-aged or older women almost exclusively, inasmuch as approximately one-third of the biopsy-positive cases of cervical carcinoma in this series occurred before the age of forty years.

COBALT 60 TELETHERAPY IN THE PALLIATION OF GASTROINTESTINAL CARCINOMA

By Charles R. Williams, M.D., James E. Lofstrom, M.D., and S. Balosfky, M.D.

A group of forty-five patients with advanced gastrointestinal carcinoma was given Cobalt^{60} Teletherapy in an attempt at palliation.

The average dose rate was 5000 to 6000 gamma roentgens, in depth, in five to six weeks.

Of the entire group, 62 per cent received no or minimal palliation, while 29 per cent had moderate to good relief of symptoms. The remaining 9 per cent were placed in an indeterminate group. The greatest benefit was noted in patients whose chief complaint was pain.

The average survival time following completion of irradiation was four to six months. Patients well palliated did not necessarily live longer than those not relieved at all.

Radiation reactions were remarkable in their absence; 91 per cent of patients had no or minimal symptoms due to therapy. In no case was it necessary to discontinue treatment due to intolerance of irradiation.

It would be difficult to say, with assurance, that more than 29 per cent of these patients derived any definite benefit from irradiation. However, in this group, palliation was frequently pronounced as well as prolonged.

PATHOGENESIS OF HYPERTENSION

(Continued from Page 537)

Summary

Etiological factors of hypertension are divided into two groups: (1) hypertension of known etiology, (a) renal hypertension, (b) cerebral hypertension, (c) endocrinal hypertension, (d) cardiovascular hypertension; and (2) hypertension of unknown etiology. The pathogenesis of each is discussed separately.

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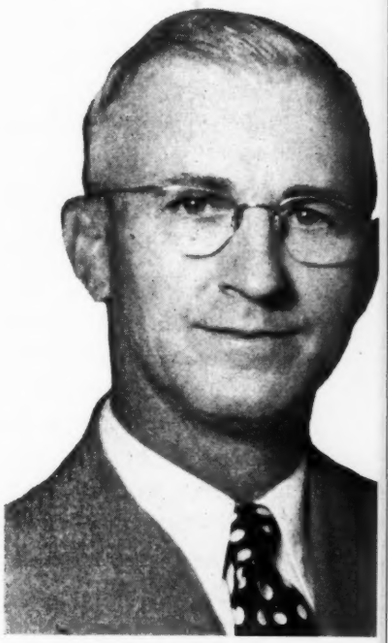
President's Message



Medical Education

When MSMS representatives met to plan Michigan participation in the first nationwide observance of Medical Education Week (April 22-28), they reviewed the long-range program of the medical profession to broaden medical service throughout Michigan.

Medical education recently has been stepped up tremendously in Michigan. Our two medical schools will graduate more than 250 M.D.'s this year, compared with 150 in 1950. Thanks to expanded facilities, total enrollment of medical students at University of Michigan and Wayne University has grown to 1,034 in the current school year; in 1950 these schools were "bursting at the seams" with 743 undergraduate medical students. Beyond these, the two medical schools today have a teaching responsibility for an additional 2,400 students enrolled in such fields as dentistry, nursing, public health, medical technology, and postgraduate medical study.

Although most M.D.'s educated in Michigan remain to practice in the state, we still must depend heavily upon attracting graduates from the seventy-nine out-of-state medical schools to maintain or improve our present favorable ratio of physicians in a population which continues to grow rapidly.

In 1950, only 421 new Michigan medical licenses were issued. During the 1955 fiscal year, Michigan issued 631 new licenses, or 391 more than the number of M.D.'s graduated by Michigan's two medical schools during the same period.

However, even though the supply of doctors is increasing, present facilities for medical education cannot hope to keep pace with Michigan's rising population, which probably will reach the 9,000,000 mark in less than twenty years. Michigan will continue to attract M.D.'s from outside its own borders; but, with stiffening competition from other states now and in the future, we may have to train more doctors within Michigan.

With this as a strong possibility—a third medical school, expansion of the present facilities, or a combination of the two—MSMS and the medical profession must continue to take a role of leadership in plans for broadening medical service for the people of Michigan.

W. S. Jones.

President, Michigan State Medical Society

Editorial

HEART PAPERS

In this issue of THE JOURNAL, we are publishing a group of papers on heart conditions and research. These papers were prepared originally for publication in the January, 1956 number, but through a sequence of occurrences, several conflicting duties, and primarily a misunderstanding, added to too many papers waiting for publication, these particular papers were held over until they could be presented in a group; this number is the first in which that could be done. We hope the authors and the officers of the Michigan Heart Association will be content. The papers are appearing in a group as they wished. The MHA Secretary, Dr. J. G. Bielawski, has been very considerate and very helpful.

MICHIGAN LEGISLATION

Third Medical School

As this editorial is being written, we can report that the Senate of the Michigan Legislature has passed an appropriation bill providing $3,239,633 for the operation of Wayne University as a state institution. The financing obligations are to be assumed entirely in three years by increasing appropriations: $6,400,000 in 1957 and $9,800,000 in 1958, after which Wayne University will be the total responsibility of the State. The details of transfer, new governing body and other items will have to be settled by cooperation and conference in the House of Representatives.

Mention of Wayne University brings up the third medical school for Michigan. Last month we reported that interests in Flint were ready to cooperate in establishing a branch medical school in Flint. The *Detroit Free Press,* March 25, contained a news story from Flint quoting the President of the Genesee County Medical Society expressing the Society's opposition to a medical school in Flint.

Following the discussion and petitions for the establishment of a third medical school in the State of Michigan and accentuated by the decision to make Wayne University a State University, we must relate two actions being considered in the Legislature:

1. House Concurrent Resolution No. 28 calls for a six-member committee, three each from the House and the Senate, with advisors from the Michigan State Medical Society, the State Board of Education, and the three Universities. The committee would be empowered to determine the need for additional medical education facilities, and to recommend the most desirable manner of providing such facilities if a need is found. On March 23, this measure was amended in the House "to include the study of existing laws and regulations pertaining to licensing and practice of medicine." This legislative committee would duplicate the work now being done by a committee appointed by President Harlan Hatcher of the University of Michigan, with Dean A. C. Furstenberg, chairman, following requests addressed to the Board of Regents asking for the establishment of brances of the medical department of the University.

2. Senate Resolution No. 19, introduced by two Republicans and five Democrats, would create a five-man interim committee "to study methods and procedures whereby an *Osteopathic College of Medicine* could be established within Michigan." The implication is that such an osteopathic school would be a state institution. The resolution states erroneously that "at the present time osteopathic physicians and surgeons can participate in and provide medical and surgical care under *all* state and federal health and welfare programs."

In another column, we quote from a statement of the Kalamazoo Academy of Medicine urging that before a third medical school is started in Michigan that Wayne University College of Medicine be expanded to its economic and maximum capacity.

NATIONAL LEGISLATION

The administration's program to provide medical and hospital care on a prepayment basis with government partial payment and payroll deduction for the civil employees and their families, has simmered down to a "major medical coverage plan," but as yet no specific bill. It *had* been planned to arrange for a complete medical, sur-

gical and hospital program such as Blue Cross and Blue Shield have to offer. Several years of negotiations have served only to muddle the efforts. Uniform programs were asked by those in charge of the negotiations. There are over two million civil employees, with approximately five million dependents.

Commercial companies have proposed pooling their interests, letting one company spearhead the program and reinsure, distributing the work among the many. Blue Cross and Blue Shield, through the national commissions, have proposed using their programs, with each plan serving the people in its certain area and offering the same coverage they now offer to all their subscribers. The program was not accepted.

The Civil Service Commission has abandoned plans for basic and normal hospital and medical care for its employees, and announces a program to pay 75 per cent of all costs after the employee has paid $500 for hospital expenses, $250 for surgical expenses and from $100 to $200 for medical expenses per year for each member of the family. There would be a limit of $5,000 per year per person and $10,000 for life, but with reinstatement upon proof of recovery.

More than two million federal employees, voluntarily and on their own account, have enrolled in Blue Cross-Blue Shield. This so-called major medical coverage is scarcely needed in Michigan. Hospital bills of $1,000 or more are being paid every thirty minutes of the working day, and $3,000 to $5,000 charges are not uncommon.

This scheme is not yet in legislative form, but has been announced. Blue Cross-Blue Shield seem to have been eliminated because there is no master plan to co-ordinate all and meet the required services.

SERVICE MEN'S DEPENDENTS

Negotiations are still in progress to furnish care for the dependents of service men. It was thought the Home Town plan in use in Michigan and some other states could be extended to cover the people in question. That is actually a cost-plus-expense plan. There is nothing in it for Blue Shield except the satisfaction of having served the people in a worthy cause. Michigan Medical Service makes no profit but makes possible with the least amount of effort the care wanted for these dependents. Just recently an amendment opposed by the medical profession has been added. It has been stipulated that where there are sufficient military doctors, these dependents may use military installations and personnel. It had been hoped this work would be given to civilian doctors except where there is none available.

TAX-FREE ANNUITIES

The Jenkins-Keough Bills (HR 9 and 10) are still under consideration. Opposition from government is mainly that these provisions would lessen the income tax totals, and the Treasury needs money. As all our readers know, these Jenkins-Keough Bills provide that under certain specifications the doctor, or other self-employed professional man, during his maximum income years, may set aside sums up to a certain per cent of income each year for investment in approved annuities or securities, up to a life-time limit of $100,000. Self-employed persons are not asking anything unusual. Every big (or small) industry can and does build up retirement funds in behalf of its executive personnel to pay suitable and sometimes very large incomes after retirement. At retirement, this income is taxable at the going rate as received. We are asking nothing more; in fact, we are asking much less.

THE JOURNAL has been advocating this adjustment of privileges for more than ten years. It is hoped and believed a good chance prevails now for favorable action in Congress if our doctors keep active. If we accept reports that the plan will surely pass, but do nothing, we shall lose out again. Government wants the tax money, and if too many voters keep quiet there will be no action.

Legislative advisors hope two of these items will pass, Jenkins-Keough, and Home Town Care for service men's dependents (without the last amendment). The care of civilian employees, as now outlined, does not offer much. The Blue Cross-Blue Shield programs, as outlined, would give people the same care to which they have become accustomed. It is not necessary to furnish the same services country wide. There are eighty-three Blue Cross and seventy-one Blue Shield plans, and a master plan has not yet been developed.

MICHIGAN MEDICAL SERVICE BLASTED

To those of our members who saw the *Detroit Free Press* on Tuesday, March 20, 1956, and to the others who heard about the several articles

we only have to say that the UAW has made drastic and positive charges, and not only against Blue Shield, for having failed to enforce the contract limitations on extra charges. The most important allegation is against the doctors themselves. The first headline carries the story: BLUE SHIELD "GOUGING" LAID TO SOME DOCTORS—*They Pad Bills, UAW Study Says.*

UAW took samples of cases from Blue Shield files in 1954, all supposed to be UAW men. Of these, 1,032 persons held the $2,500 income limit contract, and 466 held the $5,000 limit contract. All persons possible were contacted and interviewed by telephone; others were sent to the local unions and some were called upon at their homes. The polling was carried out by shop stewards or a team from the UAW head office.

Reporting findings, UAW says:

"Our survey shows, in brief, that there is very little enforcement of either the spirit or the letter of the full-payment terms of the Blue Shield Contract." "The Blue Shield Plan has not adequately explained to the subscribers that persons earning less than the income ceiling are entitled to full payment of their surgical bills if they go to participating doctors. Full payments under the $5,000 contract are not being lived up to by a great many doctors." "The $2,500 contract did not pay the full bill in four out of five cases." "For those reporting incomes of less than $5,000, forty-four out of 135 (32.6 per cent) received full payment."

The survey did not enquire whether the patients had waived the income limit by accepting the doctor's price or by occupying private rooms at the hospital. The report states that in fifty-seven cases of admitted over-income, eighteen were fully paid, and the others are counted as overcharges. The survey asked what operations was performed, the surgeon's name, and the amount of overcharge if the bill was not fully paid, also whether any other bills were paid to other doctors.

A study of the cases included in this survey is being made by Michigan Medical Service where professional courtesy permits. Many of the cases were at Ford Hospital which meticulously follows the regulation. The doctors at Ford are not individually interested in charges made to patients for medical care. It is presumed that Ford Hospital cases will not carry overcharges. The very first case on top of the file was that of a man who had been hospitalized three times for three different surgical attentions and for 111 days, all but eight days of which had been in private room. The chart was marked at the hospital as "over-income." This case should have been rejected, but was used to show enormous overcharge. Blue Cross had paid over $5,000 and Blue Shield over $600. The patient had paid out about $1,500. He did not have medical coverage.

The *Free Press* is continuing the articles on Blue Shield, beginning Sunday, March 25, with a very fair statement of methods doctors have used from time immemorial to determine charges to patients. Completion of the series is necessary before judgment is passed, and then it will be the judgment of the people served by newspapers using the stories.

Another serious criticism is that doctors' charges are too high. That is something Michigan Medical Service or the Michigan State Medical Society cannot control. The Michigan State Medical Society pioneers have built, from nothing, a service of astounding achievements. Half the people of our state are protected. With complete confidence and co-operation, the limits of good deeds are incomprehensible. Such success demands that the profession take another look. National Compulsory Health service was on our necks, and the UAW is still demanding "complete health service at no cost to consumer."

The private practice of medicine is our right, and only our own acts will change what has become so firmly re-established. Blue Cross and Blue Shield are great public trusts, not fountains of gold that could be dried up.

While this editorial was being written, the editor received a long distance call from a worker in the Professional Management program saying that in several years of looking over doctor's accounts and charges, he had not seen a single case of overcharge knowingly made on an under-income limit patient. It is hoped his observation is true in its final analysis. During the past eight months, fifty-four complaints of overcharges have been taken to MMS headquarters. Every one was adjusted. That service has been available for many years, and Michigan Medical Service hopes disgruntled patients will avail themselves of every legitimate opportunity to adjust misunderstandings. If, in this service, unethical conduct is uncovered, the Council of the Michigan State Medical Society has directed such cases to proper medical organizations. Economics, not ethics, is the basis of Michigan Medical Service.

1956 MCI Scientific Program Acclaimed Finest Yet

In the opinion of a majority of MSMS members who attended the 1956 session, the most valuable scientific program in the ten-year history of the Michigan Clinical Institute was presented March 7-8-9 in Detroit.

During the three-day postgraduate meeting thirty guest lecturers, including thirteen from leading medical centers outside of Michigan, reviewed the practical aspects of progress within the past year in many important fields of medical and surgical care. Several of the best-known and most-respected members of the medical profession were among those who reported most recent developments adaptable to the daily practice of Michigan doctors of medicine.

L. W. Hull, M.D., of Detroit, former MSMS President, served as General Chairman of the 1956 Michigan Clinical Institute. William S. Reveno, M.D., of Detroit, was Chairman of the Program Committee.

The excellence of the program brought a total M.D. registration only 365 short of the registration at the record-breaking 1955 meeting, in spite of the winter's worst weather conditions.

Once again, the three-way teamwork among the pharmaceutical profession, the pharmaceutical manufacturing industry, and the medical profession in the rapid progress of medical science and knowledge was emphasized throughout the scientific assemblies and at the awards luncheon on Thursday, March 8.

The awards luncheon was one of several successful special events held in conjunction with the 1956 MCI. Others included the two-day Operating Room Nurses Conference on March 8 and 9, the MSMS Conference for Residents, Interns and Senior Medical Students on March 7, and a special cancer control luncheon on March 7 sponsored by the two Michigan divisions of the American Cancer Society, with cooperation from the Michigan Cancer Coordinating Committee and the Michigan Foundation for Medical and Health Education, Inc.

1956 MCI REGISTRATION

Here is the final tabulation of registrants at the Tenth Annual Michigan Clinical Institute at the Sheraton-Cadillac, Detroit, March 7-8-9:

Doctors of Medicine	1,421
Nurses	277
Guests	401
Exhibitors	376
Total	2,475

At this luncheon on cancer control, 102 guests were present, including Cancer Society volunteers and M.D.'s The speakers and honored guests were Alton Ochsner, M.D., of New Orleans, La., and Owen H. Wangensteen, M.D., of Minneapolis, Minn. Details of the luncheon were arranged by the Michigan Division and the Southeastern Michigan Division of the American Cancer Society, with Edward W. Tuescher, Executive Director of the Southeastern division, in charge. C. Allen Payne, M.D., of Grand Rapids, Chairman of the Michigan Cancer Coordinating Committee, served as toastmaster.

At the March 8 testimonial awards luncheon, special recognition was given several M.D.'s for service to their profession, and to Michigan newspapers, radio and television stations for distinguished service to Medicine and Health. W. B. Harm, M.D., of Detroit, Vice Chairman of The Council of MSMS, acted as Chairman and Toastmaster.

Walter H. Winchester, M.D., eighty-one-year-old Flint general practitioner selected by the MSMS House of Delegates as "Michigan's Foremost Family Physician" of the year, was formally presented with his award. Fredrick F. Yonkman, M.D., of Summit, N. J., native of Michigan who is now Vice President of Ciba Pharmaceutical Products, Inc., was honored both by MSMS and the Michigan State Pharmaceutical Association. Dr. Yonkman was the official representative of the drug manufacturing industry at the 1956 MCI.

Special tribute was paid to nine MSMS members who are serving as presidents of national medical organizations. They are: From Ann Arbor—William H. Beierwaltes, M.D., American Federation for Clinical Research; Arthur C. Curtis, M.D., American Board of Dermatology and Syphilology; Russell N. DeJong, M.D., American League Against Epilepsy; Thomas Francis, Jr., M.D.,

Photo Highlights of Tenth Annual MCI

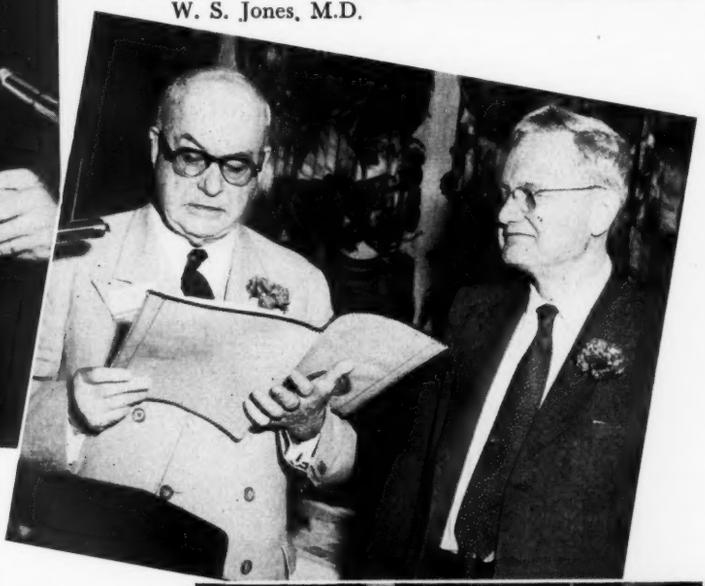
TEAMWORK between Pharmacy and Medicine was stressed. Henry J. Maicki, Detroit, President of the Michigan State Pharmaceutical Association; Frederick F. Yonkman, M.D., Summit, N. J., official representative of the pharmaceutical manufacturing industry, and MSMS President W. S. Jones, M.D., of Menominee, *(left to right)* exemplified this spirit at the March 7 testimonial luncheon.

TWO SPEAKERS well-known in cancer control presented scientific papers and were honored later at a special luncheon. Owen H. Wangensteen, M.D., of Minneapolis, Minn. *(at right)* was greeted by C. Allen Payne, M.D., of Grand Rapids, Chairman of the Michigan Cancer Co-ordinating Committee, which sponsored Dr. Wangensteen's appearance. Alton Ochsner, M.D., of New Orleans, La., *(left, below)* was sponsored by the Michigan Foundation for Medical and Health Education, of which Earl I. Carr, M.D., of Lansing, *(right, below)* is President.

RESIDENTS, INTERNS and Senior Medical Students were guests at a conference March 7, arranged by MSMS. *(At left)* D. Bruce Wiley, M.D., of Utica, Chairman of The Council of MSMS, was conference chairman, and L. Fernald Foster, M.D., Bay City, MSMS Secretary, a principal speaker. Harvey Hallum, of Mead Johnson & Co., *(left, center)* played host at a reception following. *(Above, left to right)* Others taking an important part were: Chuck Davey, Detroit insurance agent and sports figure; Mrs. John C. Rawling, Flint; L. A. Drolett, M.D., Lansing, MSMS Legislative Chairman, and Frank B. Walker, M.D., Detroit resident physician.

SIX OUT OF NINE MICHIGAN presidents of national medical organizations were honored guests at the March 8 testimonial luncheon. (*Left to right*) Frederic Schreiber, M.D., Detroit; A. C. Furstenberg, M.D., Ann Arbor; C. S. Livingood, M.D., Detroit; A. C. Curtis, M.D., Ann Arbor; W. H. Beierwaltes, M.D., Ann Arbor, and R. H. Meade, M.D., Grand Rapids. Unable to attend were: Russell N. DeJong, M.D., Ann Arbor; Thomas Francis, Jr., M.D., Ann Arbor, and Wolf W. Zuelzer, M.D., Detroit.

"FOREMOST Family Physician" of the year, Walter H. Winchester, M.D., Flint, (*left*) received official recognition in behalf of his colleagues from MSMS President W. S. Jones, M.D.



FOR LEADERSHIP of Michigan Medical Service (Blue Shield) from 1942 to 1955, Robert L. Novy, M.D., Detroit, was honored twice. (*At right*) Wilfrid Haughey, M.D., of Battle Creek (*upper left*), Dr. Novy's successor as Blue Shield President, presented a memento from Michigan Medical Service. M. A. Darling, M.D., President of Wayne County Medical Society, (*lower left*) presented a token from MSMS.

RECOGNITION for its support of Michigan's M.D. Placement Program went to The Upjohn Company, Kalamazoo. *(At left)* MSMS Councilor Ralph W. Shook, M.D., of Kalamazoo, *(right)* presented the award to W. Fred Allen, Upjohn Vice President.

SCIENCE WRITER Jean Pearson (*left*) shared with her newspaper, *The Detroit Free Press,* the MSMS Award for Excellence in Medical Reporting. Glenn E. Millard, M.D., of Detroit, her official MSMS host, presented an orchid before the ceremonies.

FOR MANY YEARS interested in Health and Medicine, John F. Wurz, Editor of the *Grand Rapids Herald,* (*at right, center*) received the MSMS Distinguished Health Service Award from President Jones. John F. Wurz, Jr., M.D., of Grand Rapids, *(third, right)* served as his father's official host.

CO-SPONSORSHIP of a community medical forum with the Ingham County Medical Society prompted a scroll to the *Lansing State Journal.* Birt Darling, *State Journal* representative (*at left, center*) accepted the award from two fellow townsmen, MSMS Councilor O. B. McGillicuddy, M.D. (*left*) and Kenneth H. Johnson, M.D. Vice Speaker of the MSMS House of Delegates.

CITY EDITOR Tom Fallon, of the *Muskegon Chronicle, (first, right)* was congratulated by W. B. Harm, M.D., Detroit, Vice Chairman of The Council of MSMS, for his newspaper's sponsorship of a community medical forum in co-operation with the Muskegon County Medical Society. The Chronicle received the Distinguished Health Service Award.

TELEVISION and radio broadcasting stations, together with sponsors, received recognition for continued interest in presenting programs concerning medical information and progress.

FOR TELEVISION COVERAGE of medical progress, coupled with longstanding radio interest, MSMS gave its thanks to two Michigan broadcasting organizations. J. J. Lightbody, M.D., Detroit, (*upper photo, right*) made the presentation to Harry Lipson, of WJBK, Detroit (*left*) and Keith T. McKenny, of WJBK-TV. R. W. Teed, M.D., Ann Arbor *(lower photo, left*) performed the honors with Edward F. Baughn, of WPAG and WPAG-TV, Ann Arbor.

"TELL ME, DOCTOR", medical series transcribed by MSMS, has been broadcast over two radio stations continuously for eight years, sponsored by the same local pharmacies. Both stations and sponsors were honored. Otis Gaston, of WKZO *(upper photo, right),* displayed his scroll to Kyle Morris, of The Drug Shop (*left*) and R. W. Shook, M.D., all of Kalamazoo. From Benton Harbor-St. Joseph, William Gillespie (*lower photo, right*) accepted an award for both WHFB and Gillespie's Drug Store.

American Epidemiological Society; A. C. Furstenberg, M.D., American Academy of Ophthalmology and Otolaryngology; from Detroit—Clarence S. Livingood, M.D., Society of Investigative Dermatology; Frederic Schreiber, M.D., Harvey Cushing Society; Wolf W. Zuelzer, M.D., Society for Pediatric Research; from Grand Rapids—Richard H. Meade, M.D., American Association for Thoracic Surgery.

Robert L. Novy, M.D., of Detroit, President of Michigan Medical Service (Blue Shield) for fourteen years until last July, received mementoes from both Blue Shield directors and MSMS.

Also presented at the luncheon were awards to persons and organizations outside the medical profession. The MSMS Award for Excellence in Medical Reporting, top honor in the news field, went to the *Detroit Free Press,* represented by Managing Editor Frank Angelo, with a supporting award to Mrs. Jean Pearson, *Free Press* science writer.

Distinguished Health Service awards were presented to : John Wurz, Editor of *The Grand Rapids Herald;* the *Lansing State Journal,* the *Muskegon Chronicle;* WJBK and WJBK-TV, Detroit; WPAG and WPAG-TV, Ann Arbor; WKZO and The Drug Shop, Kalamazoo; WHFB and Gillespie's Drug Store, Benton Harbor-St. Joseph, and The Upjohn Company, Kalamazoo.

During the MCI, three Detroit service clubs took advantage of the opportunity to present a medical program for their members. MSMS President W. S. Jones, M.D., of Menominee, addressed the Civic Club; G. Thomas McKean, M.D., Detroit member of The Council of MSMS, the Downtown Lions Club, and Morris H. Marks, M.D., Detroit, the Zonta Club. Dr. Hull and Bradley M. Harris, M.D., MSMS Councilor from Ypsilanti, appeared on the "Court of Health" television program over WJBK-TV preceding the MCI.

News interest in the 1956 MCI exceeded that of any of its nine predecessors, and the scientific program received wide coverage not only by Detroit and Michigan newspapers, but by national news services and several medical publications. News reporting was coordinated and aided by a Press Relations Committee composed of A. B. Gwinn, M.D., Hastings, Chairman; H. F. Dibble, M.D., Detroit; Ralph W. Shook, M.D., Kalamazoo, and Arch Walls M.D., Detroit. Illness prevented the veteran Chairman of the MCI Press Relations Committee, C. L. Weston, M.D., of Owosso, from attending.

To aid smooth operation of the program and add to the hospitality, each of the guest lecturers and honorees was assigned an MSMS member as his "ubiquitous host."

Organizations other than those already mentioned that played a strong part in the success of the 1956 MCI by serving as co-sponsors include: Michigan Heart Association, which provided six speakers for the heart and rheumatic fever program on March 8; Michigan Regional Committee on Trauma, American College of Surgeons, which supplied six speakers on the March 7 trauma and surgery program; Davis & Geck, Inc., who sponsored continuous color motion pictures; Wayne County Medical Society, the medical schools at Wayne University and University of Michigan, Michigan Department of Health, and Michigan Public Health Officers Association.

What They Thought of the 1956 MCI

Here are some comments excerpted from letters received at the MSMS Executive Office following the Tenth Annual Michigan Clinical Institute:

"We had a grand meeting, didn't we?"

* * *

". . . a most interesting and instructive program, as well as rational arrangements."

* * *

"I enjoyed participating in the program and thought that it went off very well, indeed."

* * *

"I was certainly amazed at the clockwork manner of efficiency and organization . . ."

* * *

"I enjoyed very much my . . . attendance at the meetings of the Michigan Clinical Institute."

* * *

". . . fine program. To me, it was interesting, as well as informative, with an appreciative and attentive audience."

* * *

"I consider it to be a privilege to have attended."

* * *

"We were delighted to have had the opportunity of participating. We only regretted that we could not remain for the entire session . . ."

* * *

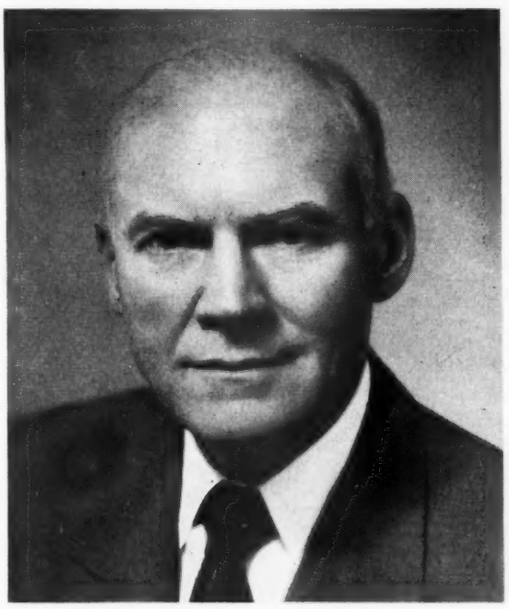
"The reaction to . . . our paper has exceeded our fondest expectations. Besides distributing over 1,200 reprints at the meeting, our mail is loaded with inquiries concerning the methods we are using here at [name of hospital]. I feel certain from the tone of these letters that MSMS has again made another step forward in the prevention and treatment of illness through the 1956 Clinical Institute . . . may I thank you for having allowed us to be a part of this highly successful undertaking."

Albert C. Furstenberg, M.D.

He's Never Too Weary to Face a Crisis

Distinguished physician, educator, able administrator and indefatigable worker—this is Albert C. Furstenberg, M.D., as his friends and colleagues know him.

It is quite unnecessary to record in the Medical Journal the life history and many honors that have come to the Dean of the University of Michigan Medical School. These are adequately listed in the national biographies. Suffice it to say, he is a Michigan man in the full sense of the word. He was born and educated in the State and has progressed steadily in the University of Michigan from student to Dean of his School. His career as an administrator may be said to have begun in 1932 when he was recalled from a planned European trip to assume the responsibilities of head of his department, made vacant by the untimely death of his chief, R. Bishop Canfield, M.D. This must be one of the shortest foreign tours on record—three days.



About 1934, when it became necessary for the University to appoint a Dean of the Medical School to succeed Dr. G. Frederick Novy, it was called to the attention of the Board of Regents by a member of the Medical School faculty, that Dr. Furstenberg had long been a student of medical education. After careful investigation this information was confirmed, and he was chosen unanimously by the Board to guide the destinies of his School. That the appointment was a wise one is evidenced by the progress the School has made under his direction.

Teaching standards have been maintained, research has prospered and physical facilities have been increased. As Dean one of his major achievements has been the progress made in correcting the old error at Michigan of separating geographically the work of the clinical and pre-clinical years. This mistake, confirmed in 1923, by the placing of the present classroom building on the campus, far from the hospital, has been a handicap to students, and has tended to develop a schism in the staff. Through Dr. Furstenberg's efforts the faculty has been unified and the pre-clinical students brought closer to the hospitals. The conditions will not be satisfactory, however, until the new classroom building, now planned to be erected in proximity to the hospitals, has been erected.

One of his well-known characteristics, which often impresses and sometimes depresses the Dean's friends, is his tireless energy. He seems never too weary to face a crisis or to carry through a project. He even "relaxes" as strenuously on vacation as he labors at other times. Whether hunting, fishing, or riding a horse, it is difficult to keep up with him. He is an enthusiastic horseman and his daughters have often remarked, "If you want to ride with Dad you must be reconciled to having

(Continued on Page 613)

A. C. Furstenberg, M.D., is currently President of the American Academy of Ophthalmology and Otolaryngology. This is one in a series of personal sketches honoring MSMS members who head national medical organizations. Alexander G. Ruthven, Ph.D., the author, is President Emeritus of the University of Michigan.

Michigan Foundation for Medical and Health Education

PRESIDENT'S ANNUAL REPORT

By Earl I. Carr, M.D., *President*

This is the eleventh annual meeting of the Michigan Foundation for Medical and Health Education, Inc. With sadness and with a sense of great loss, we record the death, since the last annual meeting, of Trustee C. Stewart Baxter, whose devotion and contribution was continuously manifest and highly valued. Since its inception, the Foundation has also lost through death, the following trustees: Drs. Rollo H. Stevens, James D. Bruce and Roy D. McClure, and through retirement, Messrs. Earnest H. Fletcher and Harry G. Gault.

The various activities and sponsorships of past years have been continued through 1955. The officers have responded to many medical student requests, more often for counsel than for financial aid. At the present time, we have seven students with whom loans are in force, totaling in round figures the advancement of $10,000.00. One loan of $1,500.00 has been repaid.

During the year, a most commendable action was taken by the Ingham County Medical Society when, by unanimous vote, a grant of $6,000.00 was set aside for student aid to upper class medical student Ingham County residents who need supplemental financial aid, and the Society named the Michigan Foundation to administer the loans under the Foundation Student Loan Plan in every particular, except for the elimination of the requirement of rural area practice. Already one loan has been extended to a University of Michigan Junior. It is to be hoped that other county medical societies will follow suit. The membership is urged to publicize this way to utilize the Foundation.

Another innovation, which has substantial potentialities, we have chosen to call the LeFevre Plan. This provides for every doctor in Michigan to forward a check for $10.00 to the Foundation annually upon his birthday. Doctor William LeFevre, of Muskegon, proposed this plan in editorials published in the *Muskegon Bulletin* and in The Journal MSMS. Several checks for this amount and some for larger amounts have been received as a result of the proposal. A substantial annual income to the Foundation may accrue by this plan. We are asking doctors to link two ideas with birthdays, a check to the Foundation, a health audit for himself.

Much enthusiasm is expressed over the success of the ninth annual Rural Health Conference held in Kalamazoo, January 19 and 20, and again financially sponsored by this Foundation as has been done heretofore year after year. There has been reason for pride in the support of this important cause, each year with a broadened scope.

As usual, two lectures were financed in 1955. Dr. Alexander Brunschwig, of New York, addressed the Michigan Clinical Institute in March on "Surgical Treatment of Cancer of the Cervix that has Recurred after Radiation Therapy." A scroll was presented to Doctor Brunschwig, for which he showed and expressed much appreciation. The Andrew P. Biddle Lecture was delivered by Dr. Charles L. Anspach, President of Central Michigan College of Education, at the MSMS Annual Meeting in September on the subject, "Forever Sacred." Both addresses were outstanding.

Henry A. Luce, M.D.

Henry A. Luce, M.D., Detroit, Past President of the Michigan State Medical Society, who died on October 28, 1955, bequeathed the sum of $1,000 to the Michigan Foundation for Medical and Health Education, earmarked for psychiatric research and study.

During his lifetime, Dr. Luce was active in the work of the Michigan Foundation, being one of its original members.

Besides the $6,000.00 grant heretofore described and available and to be withdrawn as needed for the earmarked and designated purpose, other contributions have come in, ranging from $10.00 to $1,000 each. They aggregate over $2,000.00 The sale of a sizable block of General Motors rights was another contribution. The total resources of the Foundation increased in 1955 in the amount of $1,523.36, bringing the total to $114,709.01, after disbursements for activities of over $4,000.00, according to the CPA audit of December 24, 1955.

Increased activities of the Foundation are possible by increased support, which we are always pursuing and gradually securing.

SECRETARY'S ANNUAL REPORT TO THE MEMBERSHIP

The Secretary has executed the duties of his office according to the By-Laws and as provided in Robert's Rules of Order, pursuant to the instructions of the members of the Board of Trustees, under the continued guidance of President Carr and of Treasurer Gardner, to whom the Secretary again expresses gratitude and appreciation.

On September 8, 1955, the Woman's Auxiliary to the Wayne County Medical Society voted to contribute $1,000 to the Student Loan Fund, with certain

(Continued on Page 611)

"How to look at a doctor's bill" could well serve as the title for recent Parke-Davis advertisements on the cost of medical care. For they suggest to the public new ways of looking at the extraordinary *value* one buys with each dollar spent for prompt and proper medical care.

These Parke-Davis messages talk in everyday language about familiar but "forgotten" facts. Some examples: the steadily decreasing cost of curing diseases such as pneumonia, the phenomenal reduction in the death-rate for children, the substantial savings in time and income because of the shortened duration of hospital stays.

By highlighting the heartening facts of medical progress in relation to the cost of medical care, this new series hopes to help in creating a healthy, realistic public opinion on the reasonableness of medical costs.

To do this successfully, we wish the facts to have the widest possible readership. Therefore these advertisements are being published regularly in such mass-circulation magazines as LIFE, the SATURDAY EVENING POST, and TODAY'S HEALTH.

If you would like to have folder-size reprints of any of these ads for your reception room, we will be happy to supply them on request.

PARKE, DAVIS & COMPANY
Detroit 32, Michigan

Michigan's Department of Health

Albert E. Heustis, M.D., Commissioner

COMMON LAW MARRIAGES OUTLAWED IN MICHIGAN

As a result of a law passed at this session of the Michigan Legislature and signed by the Governor, common law marriages contracted in Michigan after January 1, 1957, will not be recognized. With the passage in 1937 of the premarital blood test law, a blood test became mandatory for the issuance of a marriage license. This automatically invalidated many new common law marriages.

DRUGS AND TB

Physicians are urged not to let an attractive blue and gray booklet mailed them recently go unread in the spring rush. "Drugs in the Treatment of Tuberculosis," issued by the Michigan Joint State Committee on Tuberculosis, sums up in its few, brief pages the current thinking in this vital area of tuberculosis control. The Joint State Committee, made up of the TB Control Committee of the Michigan State Medical Society, the Michigan Sanatorium Superintendents Association, The Michigan Sanatorium Commission, the Michigan Health Officers Association, the Michigan Tuberculosis Association and the Michigan Department of Health, is a group uniquely qualified to speak on this important subject.

APROPOS OF FLUORIDATION

Three publications are now available from the state health department for use in community campaigns promoting water fluoridation. "Bright Smiles" presents the Grand Rapids experience in fluoridating its water supply as an effective way of fighting tooth decay in children. "Wonderful Water" is a companion folder that sums up the answers to claims made by opponents of fluoridation. "The Facts About Fluoridation" is a single sheet condensation of "Wonderful Water," prepared for very general distribution. All three publications will be furnished in quantity to any community in which fluoridation is being considered.

NEW VISION FILM FOR LOAN

"Magic in the Seeing," a new 11-minute, black and white, sound motion picture on vision produced by the Michigan Department of Health, is now available for loan from the department's film loan library.

Filming was done last summer at Central Michigan College, Mt. Pleasant, with the elementary school boys and girls as willing actors. The film shows the purposes and general plan of a community vision program for school children, the co-operative action involved, the techniques employed in screening with the Massachusetts Vision Test equipment, the follow-up examination as indicated, and the fitting of glasses.

The film is intended for parent groups in communities where vision programs are in preparation or progress. It has received favorable comment from a number of professional groups both within and outside the state for its clarity, simplicity and human interest.

A companion motion picture on hearing conservation is now in production in the department, with some of the filming done and the script outlined.

FILM LOAN SERVICE POPULAR

The department's loan library of motion picture films, film strips and slides set up in 1941 has grown steadily in response to community demands and is now a well known and appreciated educational service. The film loan catalogue lists nearly 600 prints of motion picture films, and the addition of film strips and slides brings the number of items close to 1,000. Titles number 331, ranging over the whole complex field of public health. Most of the films are sound and many of them are color.

Checking films out to borrowers and in for inspection and repair after use was at first done at odd times by the photographer and darkroom technician. It is now the full-time job of a clerk.

The usefulness of the loan service is shown by the annual report of the visual education unit for the year ended June 30, 1955. Loans totalled 5,881, showings reached 12,742 and attendance was reported as 517,592. This year's totals will be even higher.

Kinescope recordings of live television shows put on by the department over WKAR-TV will become a feature of the loan collection beginning in September, 1956. By that time, a new color motion picture film produced by the department will be added to the list, "Vacation-bound!" It shows the resort inspection service tied in with the HDA, Health Department Approved, signs now an accepted part of Michigan's highway guides.

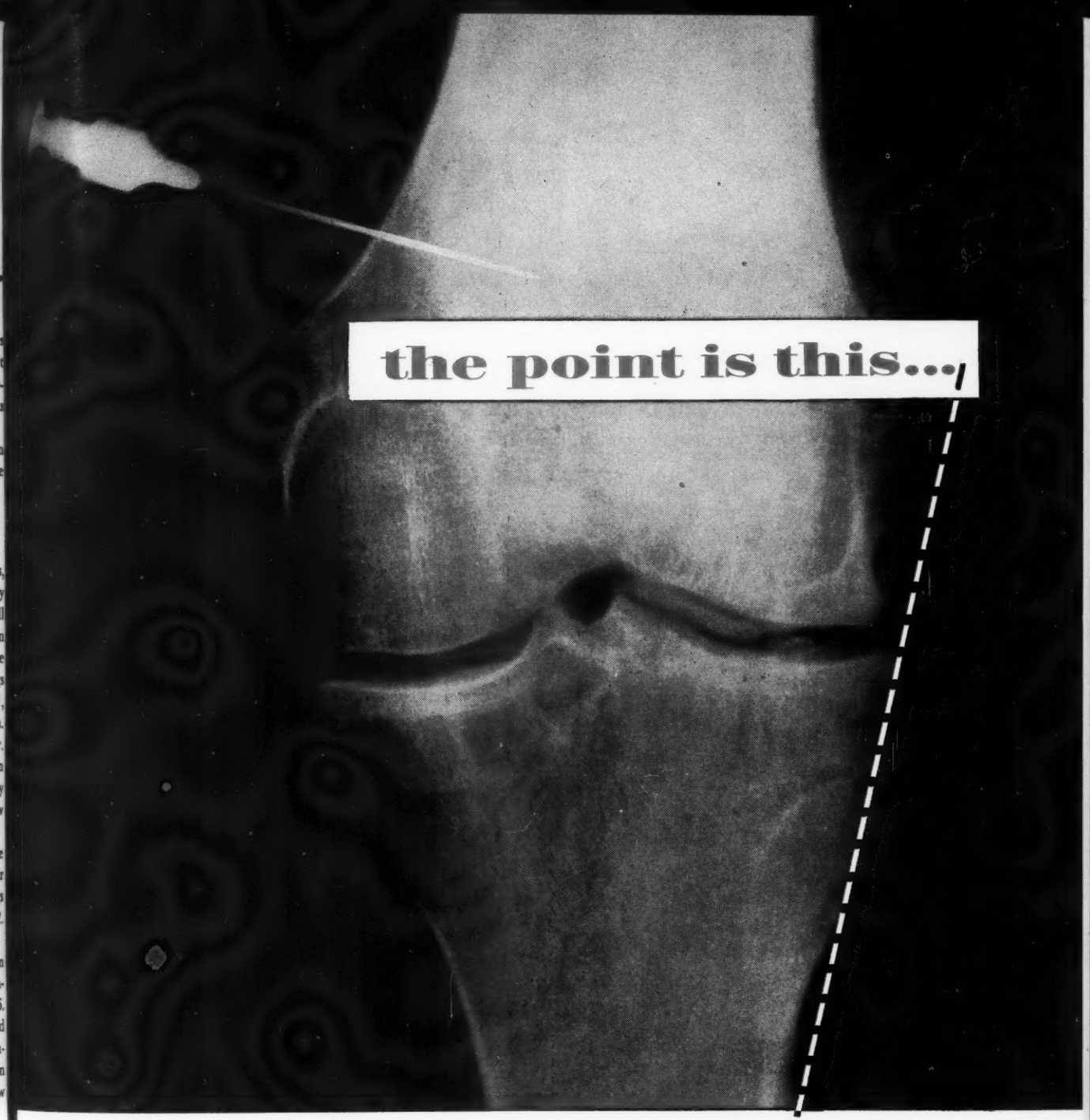
"THE CHILD WITH RHEUMATIC FEVER"

A new booklet, "The Child with Rheumatic Fever," issued by the Children's Bureau, is available from the maternal and child health section of the department. Written especially for parents, the booklet stresses the importance of prompt medical care, precautions after the active signs of the disease have gone, and use of community resources for education and vocational training for the child suffering heart damage.

Getting a woman to admit she is forty is certainly a difficult task; but this accomplished, getting her to come in for regular pelvic examinations should be simple!

* * *

The over-all five-year survival rate for ovarian tumors is around 15 per cent.



HydroCortone® -T B A

(HYDROCORTISONE TERTIARY-BUTYLACETATE, MERCK)

gives the arthritic patient more days of freedom from joint symptoms—in many patients the anti-rheumatic effect persists 2 to 10 times longer than after injection of hydrocortisone acetate. Its action is local and without systemic effect.

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Philadelphia 1, Pa.
DIVISION OF MERCK & CO., INC.

SUPPLIED: SALINE SUSPENSION HYDROCORTONE-TBA—25 MG./CC., VIALS OF 5 CC.

NEWS MEDICAL

MICHIGAN AUTHORS

E. L. Quinn, M.D., J. M. Colville, M.D., and Frank Cox, Jr., M.D., all of Detroit, are authors of an original article, "Phenoxymethyl Penicillin (Penicillin V) Therapy of Subacute Bacterial Endocarditis," which appeared in *JAMA* of March 17, page 931.

J. T. Ferguson, M.D., and W. H. Funderburk, Ph.D., Traverse City, are authors of an original article, "Improving Senile Behavior with Reserpine and Ritalin," which appeared in *JAMA* of January 28, page 259.

H. H. Stryker, M.D., Kalamazoo, is the author of an article, "Safe Traction in Children with Fractured Femurs," which appeared in *JAMA* of February 4, page 388.

Frederick A. Coller, M.D., Ann Arbor, is the author of an article entitled "Cancer of the Colon and Rectum: Concepts of Treatment," published in the *University of Michigan Medical Bulletin,* November, 1955.

Leo G. Nutini, Carl M. Morgan, Cincinnati, and **Albert H. Wheeler, Yuko Nakamura, and Reuben L. Kahn,** Ann Arbor, are the authors of an article entitled "The Universal Serologic Reaction in Brown-Pearce Carcinoma," published in the *University of Michigan Medical Bulletin,* November, 1956.

Fred Holtz, M.D., Ann Arbor, is the author of an article entitled "Renal-Adrenal Heterotopia: Case Report and Review of the Literature," published in the *University of Michigan Medical Bulletin,* December, 1955.

G. H. Lawrence, M.D., Ann Arbor, is the author of an article entitled "Left Heart Catheterization: Indications and Interpretations" published in the *University of Michigan Medical Bulletin,* December, 1955.

Henry H. Swain, M.D., Ann Arbor, is the author of an article entitled "A Direct-Writing Flowmeter," published in the *University of Michigan Medical Bulletin,* December, 1955.

L. Douglas MacRae, M.D., Bay City, is the author of an article entitled "The Regulation of Dicumarol Dosage by Special Venous Clotting Techniques," published in the *American Practitioner and Digest of Treatment,* January, 1956.

Sylvester J. O'Connor, M.D., Ann Arbor, is the author of an article entitled "Osteochondritis of the Accessory Tarsal Navicular Bone," published in the *University of Michigan Medical Bulletin,* January, 1956.

James E. C. Walker, M.D., Ann Arbor, is the author of an article entitled "Certain Concepts of Clubbing of the Digits," presented at the Regional Meeting of the American Federation of Clinical Research in Detroit, March, 1955, and published in the *University of Michigan Medical Bulletin,* January, 1956.

Carol E. Goodman, M.D., Alma J. Murphy, Ph.D., and **James W. Rae, Jr., M.D.,** Ann Arbor, Michigan, are the authors of an article entitled "Tissue Temperatures Produced by the Application of Moist Air," read at the Thirty-third Annual Session of the American Congress of Physical Medicine and Rehabilitation, Detroit, August, 1955, and published in the *Archives of Physical Medicine and Rehabilitation,* January, 1956.

Manos A. Petrohelos, M.D., and **J. Reimer Wolter, M.D.,** Ann Arbor, are the authors of an article entitled "Necroscleritis Nodosa," published in the AMA *Archives of Ophthalmology,* February, 1956.

Robert J. Meade, M.D., F.A.C.S., D.A.B., and **William H. Meade, M.D., F.A.C.S.,** Lansing, are the authors of an article entitled "Treatment of Aneurysms with Dermal Grafts" read at the Twentieth Annual Congress of the United States and Canadian Sections, International College of Surgeons, Philadelphia, September, 1955, and published in the *Journal of the International College of Surgeons,* February, 1956.

J. Reimer Wolter, M.D., Thomas Stratford, M.D., and **E. Richard Harrell, M.D.,** Ann Arbor, are the authors of an article entitled "Cast-like Fungus Obstruction of the Nasolacrimal Duct," published in the AMA *Archives of Ophthalmology,* March, 1956.

Carl F. List, M.D., Grand Rapids, is the author of an article entitled "Disturbances of Eye Movements as a Neurologic Problem," published in the *New England Journal of Medicine,* March 8, 1956.

Thomas Francis, Jr., M.D., Ann Arbor, is the author of an article entitled "Virus Problems in Medicine" published in the *Illinois Medical Journal,* November, 1955, and digested in *Ophthalmology and Otolaryngology,* February, 1956.

K. A. Platt, M.D., M. W. Reynolds, M.D., Denver, and **A. J. Neerken, M.D.,** Kalamazoo, are the authors of an article entitled "Coarctation of the Aorta and Pregnancy," published in the *Rocky Mountain Medical Journal,* March, 1956.

Edward L. Quinn, M.D., James M. Colville, M.D., Frank Cox, Jr., M.D., and **Joseph Truant, Ph.D.,** Detroit, are the authors of an article entitled "Phenoxymethyl Penicillin (Penicillin V) Therapy of Subacute Bacterial Endocarditis," published in the *Journal of the American Medical Association,* March 17, 1956.

Edmond L. Cooper, M.D., Detroit, is the author of an article entitled "Muscle Surgery and Orthoptics," read at the annual joint meeting of the American Orthoptic Council and the American Association of Orthoptic Technicians, September, 1954, New York,

(Continued on Page 594)

Meat...

and the Rehabilitation of Protein Depleted Patients

Although the recommended daily allowance of one gram of protein per kilogram of body weight is adequate for the average healthy adult,[1] greater amounts may be needed in the rehabilitation of patients depleted in protein after severe infections, mechanical trauma, burns, or extensive surgery.[2] Protein needs for tissue regeneration during convalescence are high.

To speed rehabilitation of the protein depleted patient, top quality protein and calories should be given in generous quantity.[2] However, a high protein intake, 130 grams daily, at best induces a slow response.[3] Intakes at 3 or 4 times that level may produce considerably more rapid gain in weight, strength, and morale.[4,5] If mastication and swallowing are difficult, canned strained meats—such as used in infant feeding—may be used to advantage in the high protein diet.[2]

Lean meat, outstanding in contained top quality protein, may well be made the keystone of the high protein diet. Its abundance of vitamin B complex and essential minerals—iron, phosphorus, potassium, and magnesium—adds to its therapeutic value. Important also are its appetite appeal, its easy digestibility, and its virtual freedom from allergenic properties.

1. Recommended Dietary Allowances, Washington, D. C., National Academy of Sciences—National Research Council, Publication 302, 1953.
2. Co Tui: Review: The Fundamentals of Clinical Proteinology, J. Clin. Nutrition *1*:232 (Mar.-Apr.) 1953.
3. Keys, A.; Brozek, J.; Henschel, A.; Mickelsen, O., and Taylor, H. L.: The Biology of Human Starvation, Minneapolis, Univ. of Minnesota Press, 1950.
4. Burger, G.C.E.; Drummond, J.C., and Sandstead, H.R.: Malnutrition and Starvation in Western Netherlands, The Hague General State Printing Office, 1948, Part II, p. 91.
5. Co Tui; Kuo, N.H.; Chuachiaco, M., and Mulholland, J.H.: The Protein Depletion (Hypoproteinia) Syndrome and Its Response to Hyper-Proteinization, Anesth. & Analg. *28*:1 (Jan.-Feb.) 1949.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago... Members Throughout the United States

Say you saw it in the Journal of the Michigan State Medical Society

(Continued from Page 592)

and published in the *American Orthoptic Journal*, Volume 5, 1955.

Harold E. Bowman, M.D., and **Herman Pinkus, M.D.,** Grand Rapids, are the authors of an article entitled "Keratoacanthoma (Molluscum Sebaceum)" published in the *Archives of Dermatology and Syphilogy*, July, 1955, and condensed in the *American Practitioner and Digest of Treatment*, February, 1956.

James W. Rae, Jr., M.D., and **Leonard F. Benderz, M.D.,** Ann Arbor, are the authors of an article entitled "Treatment of Patients with Rheumatoid Arthritis by Physical Means," read before the Section on Physical Medicine and Rehabilitation at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955, and published in the *Journal of the American Medical Association*, February 25, 1956.

H. G. Kobrack, M.D., Ph.D., Detroit, is the author of an article entitled "Pathology and Audiology of Middle Ear Lesions," published in the AMA *Archives of Otolaryngology*, February, 1956.

* * *

The Second Clinical Research Symposium is to be held at Northville State Hospital on June 6, 1956. The topic will be "Atropine Toxicity Therapy." The moderator will be Philip N. Brown, M.D., Superintendent, Northville State Hospital. A number of papers will be presented, and the day will close with discussion groups in the following areas: Research, Clinical Application, and Private Practice, to be led by Dr. Gordon L. Forrer, Clinical Director, Northville State Hospital; Dr. Jacob Miller, Chief, Intensive Treatment Unit, Northville State Hospital; and Dr. Richard D. Goldner, Saginaw, Michigan.

* * *

At the American Goiter Association meeting held at the Drake Hotel in Chicago on May 3, 4, and 5, two of the thirty-nine papers presented during the session, were by Michigan men. **D. R. Korst, N. S. Hiramoto** and **W. H. Beierwaltes,** Ann Arbor, presented a paper on "Rise in Basal Metabolic Rate and Fall in Protein-Bound Iodine Induced by Epinephrine" and **J. M. Miller, M. A. Block** and **B. E. Brush,** Detroit, on "The Selection of Patients for Thyroid Surgery."

* * *

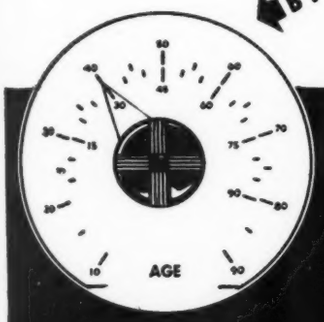
The Pan American Sanitary Bureau of the World Health Organization purchased nineteen iron lungs which were flown on March 14 to Buenos Aires by the Military Air Transport Service. The latest report from the Argentine Government lists 1310 cases of poliomyelitis with 120 deaths in Argentina between January 1 and March 12.

On March 6, the Pan American Sanitary Bureau pur-

(Continued on Page 596)

WE'VE GREATLY *Simplified* IT FOR YOU, DOCTOR . . .

BY SETTING THESE DIALS . . . . AND PRESSING THIS BUTTON



ALL DIALS: MALE—Outer scale; FEMALE—Inner scale

THE L-F
BASALMETER
Self-Calculating
Basal Metabolism Apparatus

With this new, efficient BMR apparatus, you put in *four* factors (age, height, weight and sex) and the patient puts in the *fifth*—the time factor. The BasalMeteR computes these factors electrically and gives you an accurate basal metabolic rate.

THERE ARE NO CHARTS, NO GRAPHS, NO SLIDE RULES, NO "WHEEL" CALCULATORS, NO CONVERSIONS, NO HEAVY OXYGEN TANKS!

L-F

HOLD BUTTON DOWN TO READ BM RATE

YOU READ THE BM RATE RIGHT HERE

Here is a long-awaited, long-needed simplification in metabolism test apparatus! No "wondering" about human error with the BasalMeteR. At conclusion of the test, you press a button and read the result in terms of a plus or minus in percentage of normal. It's as simple as that, and just as reliable. Find out now, without obligation, about this newer, better BMR unit!

MAIL THIS COUPON *Today!*

THE LIEBEL-FLARSHEIM CO.
Cincinnati 15, Ohio MIC

Gentlemen: Please send me, without obligation, your 6-page brochure describing the new L-F BasalMeteR.

NAME_____

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for modern
control of
salt retention
edema

CUMERTILIN®
(Brand of Mercumatilin, Endo)
Tablets

- effective **oral** diuretic with no significant gastrointestinal irritation[1]
- Suitable for long-term maintenance therapy.
- eliminates need for injections in certain cases, lengthens interval between injections in others
- basically **different** in chemical structure, extending the therapeutic choice in organic mercurials

DOSAGE: 1 to 3 tablets daily as required.

SUPPLIED: As orange tablets, in bottles of 100 and 1000. Also available—

CUMERTILIN Sodium Injection, 1- and 2-cc. ampuls, in boxes of 12, 25, and 100; and 10-cc. vials, individually and in boxes of 10 and 100.

1. Pollock, B. E., and Pruitt, F. W.: Am. J. M. Sc., 226:172, 1953.

THE G. A. INGRAM COMPANY
4444 Woodward Avenue, Detroit 1, Mich.

(Continued from Page 594)

chased twenty-one iron lungs which were flown to Argentine by U. S. Air Force plane and in use two hours later. In addition to this, the National Foundation for Infantile Paralysis is also supplying equipment, including infant, juvenile and portable iron lungs and several rocking beds.

* * *

Debt of Surgery to Roentgenology.—In an editorial in the February, 1956, *American Journal of Roentgenology, Radium Therapy and Nuclear Medicine,* Frederick A. Coller, M.D., Ann Arbor, traced the growth of surgery and the discovery of x-ray.

"Anesthesia and antisepsis . . . were necessary, fundamental techniques, but surgery could not enlarge its scope . . . without clear cut objectives demonstrated by this startling new discovery. . . . The great advances in surgery in recent years have come from the laboratory to the clinic. The radiologist has played an important part in all these advances . . . he has been a fruitful and stimulating companion travelling with us on all roads to solid achievements."

* * *

The article entitled "Health Requires Endless Search for Human Talent" by **A. C. Furstenberg, M.D.,** Dean of the University of Michigan Medical School, published in the February issue of THE JOURNAL of the Michigan State Medical Society, was reprinted on the editorial page of *The Saginaw News,* March 16, 1956.

* * *

The Sixth International Congress on Otolaryngology will be held in Washington, D. C., on May 5 to 10, 1957. Elaborate plans are being made for a well rounded program, many international guests, and postgraduate opportunities. Registration and headquarters will be at the Statler. There will be three plenary sessions on Monday, Wednesday and Friday mornings; (1) Chronic Suppuration of the Temporal Bone; (2) Collagen Disorders of the Respiratory System; (3) Papilloma of the Larynx. There will be original papers and other presentations at the general sessions. The official languages will be English, French, German and Spanish. Three postconvention tours are being planned; seven, seventeen and twenty-one days. Administration office, 700 North Michigan Ave., Chicago 11, Illinois.

The Sixth International Congress on Bronchoesophagology will be held in Philadelphia, May 2 and 13, 1957. Chevalier Jackson in charge.

The International Congress on Audiology will be at St. Louis, Mo., May 14, 15 and 16, 1957, with Richard Silverman, Ph.D., 818 So. Kingshighway in charge.

The International Voice Conference will be in Chicago, May 20, 21 and 22, 1957. Hans von Leden, M.D., 30 No. Michigan, Chicago, in charge.

* * *

American Board of Obstetrics and Gynecology.—Applications for certification (American Board of Obstetrics and Gynecology) for the 1957 Part I Examinations are now being accepted. Candidates are urged to make

(Continued on Page 598)

DOCTORS EVERYWHERE NOW KNOW WHY

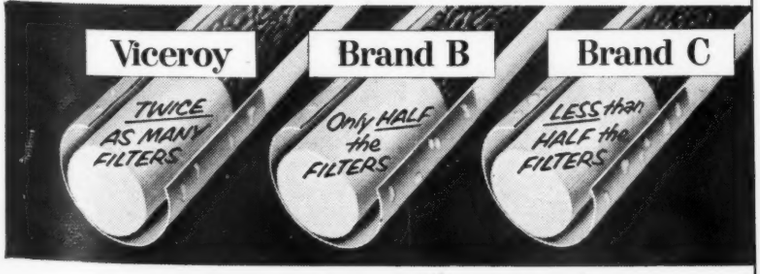
Viceroys Are Smoother

Professional men who have studied the microscopic analysis of the Viceroy filter now know why the Viceroy taste is smoother—never rough. Only Viceroy has 20,000 tiny filters in every tip—twice as many filters as the other two largest-selling filter brands. That is why Viceroys are smoother by far—never, never rough. That is why so many doctors now smoke and recommend Viceroys.

Yes, smoother taste because there are

TWICE AS MANY FILTERS IN EVERY VICEROY TIP

as the other two largest-selling filter brands!



Viceroy's exclusive filter is made from pure cellulose—soft, snow-white, natural!

(Continued from Page 596)

such application at the earliest possible date. Deadline date for receipt of applications is October 1, 1956.

All candidates for admission to the Examinations are required to submit with their application, a plain typewritten list of all patients admitted to the hospitals where they practice, for the year preceding their application or the year prior to their request for reopening of their application.

Application for re-examination, as well as requests for resubmission of case abstracts, must be made to the Secretary prior to October 1, 1956.

Current bulletins outlining present requirements may be obtained by writing to the Secretary's office: Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

* * *

Atomic energy is being used well, but not to the utmost, in medicine today. Its optimal employment calls for training of greater numbers of doctors, nurses and technicians; equipment of more hospitals and medical schools with facilities for handling radioisotopes, and improvement in exchange of atomedical information. These are among conclusions of a citizens' advisory panel whose report, based on a 10-month study, was published recently by Congress' Joint Committee on Atomic Energy. Nine-member panel was headed by Robert McKinney, New Mexico publisher.

"The strides made by the United States in atomic development in the medical and public health field create an obligation to utilize this new knowledge to the utmost for the benefit of our own people," said the report. But it states that only 870 hospitals and medical clinics out of 6,970 are using radioisotopes in research, therapy or diagnosis; 35 out of 80 medical schools polled give no training in clinical use of radioisotopes. How to finance improvements the panel did not say, but it counseled that "medical institutions and research centers should not assume a passive role and expect the government . . . to assume all or even a major portion of the responsibility for providing research facilities, equipment and materials."

Government does have a responsibility, along with industrial and civic groups, said the report, in alleviating shortage of physicians, nurses and technicians: "No young man or woman who has the capacity and desire to enter the medical, nursing or medical research professions . . . should be turned away for want of faculties, facilities or funds."—*Washington Report on Medical Sciences.*

* * *

The National Medical Civil Defense Conference, sponsored annually by the AMA Council on National Defense, has been scheduled for Saturday, June 9, at the Palmer House, Chicago—just prior to the opening of the annual AMA convention.

Previous conferences have been held in Atlantic City,

(Continued on Page 600)

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in which oral cortisone
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Available in 1 mg. and 2.5 mg.
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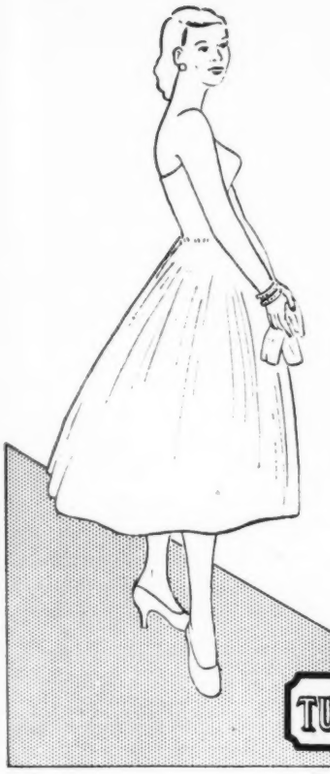

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9-aminoacridine hydrochloride	2.0 mg.	Hyamin 10X	2.0 mg.
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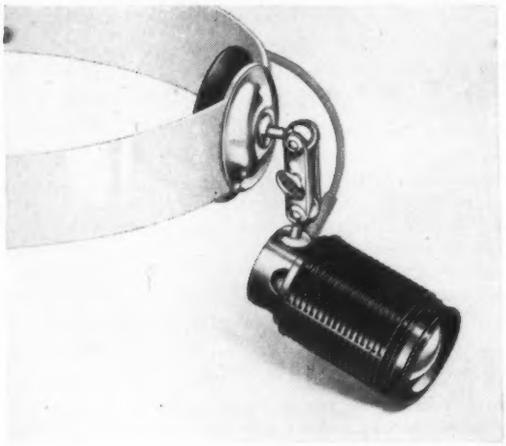

No. 460

WELCH ALLYN

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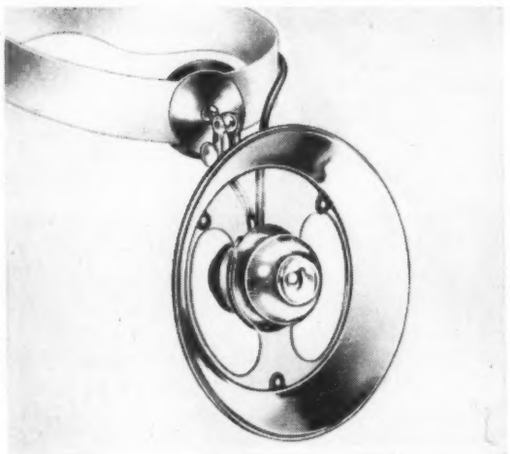

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May we suggest that you check *both* Welch Allyn types before you purchase your next headlight?

No. 460 is a superior, direct, focusing light, favored for its combination of great intensity with freedom from filament shadows and other imperfections in the light beam. Focuses down to a 1/2" spot at 8" focal length or up to 6 1/2" at 13" focal length. Complete with transformer, $28.00.

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(Continued from Page 598)

San Francisco, New York, and Chicago. Last year's meeting in Atlantic City featured the subject of radioactive fall-out. Outstanding medical speakers discussed radiological defense measures and the effects of residual radiation.

While plans for this year's program have not yet been completed, Executive Secretary Frank A. Barton said every effort is being made to prepare a program that will be both interesting and informative. The program committee, now at work consists of Drs. Harold C. Lueth, Evanston, Illinois; Reuben A. Benson, Bremerton, Washington, and Max L. Lichter, Detroit.

Physicians who plan to attend the annual AMA meeting are urged to come a day or two earlier and attend the civil defense session. Inquiries may be directed to the council office at AMA headquarters.—*AMA Secretary's Letter.*

* * *

The British Ministry of Health reports that about 3,750,000 persons (roughly one-sixth of the working population) are enrolled in private health insurance plans, despite the national health insurance program. With dependents, the number of persons covered by private plans is about 10,000,000 or about one fifth of the entire population.—*Blue Shield News Letter.*

* * *

Michigan Hospital Service, in 1955, paid for hospitals $84,043,847, making a total for all the years of operation, $425,599,088. The operating expense last year was 3.99 per cent. There were 392,750 sick and injured Blue Cross patients and 107,592 newborn babies and their mothers. Michigan Hospital Service paid for its people over half a million hospital bills, one out of nine persons carrying protection.

* * *

Veterans Care.—When administering to veterans with service-connected disabilities, be sure you have proper authorization before being responsible for *any* expense. The Veterans Administration and veterans organizations have fixed procedures to solve these problems. If not followed, recompense is a matter of long delay, or may be denied.

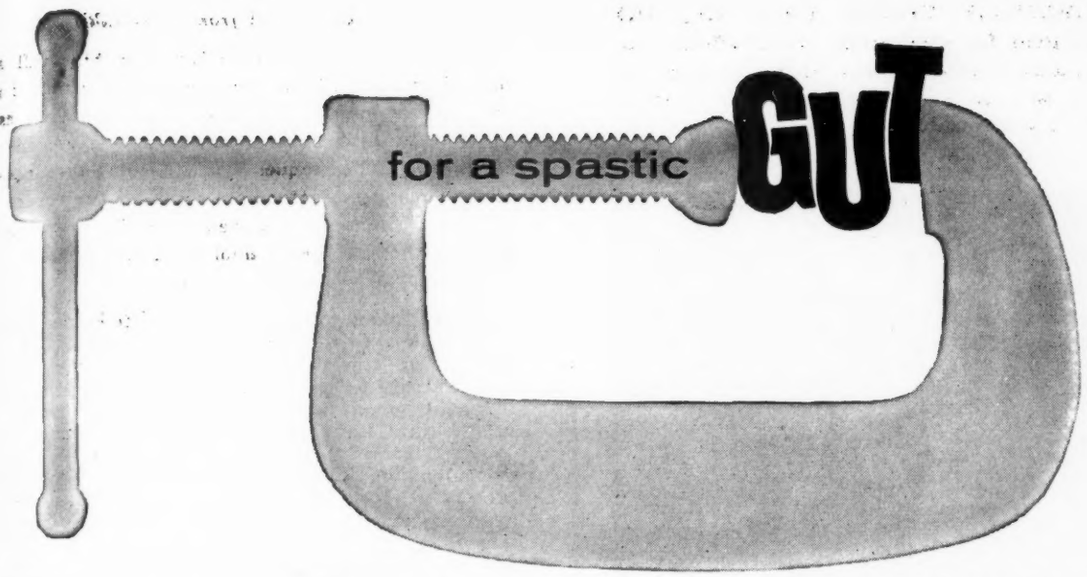
* * *

Five members of the Kalamazoo Academy of Medicine met at the Civic Auditorium, March 12, 1956, to inaugurate the first free medical forum of the district. Sponsored by the *Kalamazoo Gazette* and the Kalamazoo Academy of Medicine, the forum is open to the public at no charge. Questions are to be submitted on coupons printed in the *Gazette.* No questions will be answered from the floor but a discussion may follow. No limit is placed on the number of questions.

* * *

The Kalamazoo Academy of Medicine has made an official statement in which it suggested that the establishment of a third medical school in Michigan would be unwise until existing schools, particularly Wayne University Medical School, have been expanded to the greatest practical degree.

(Continued on Page 602)



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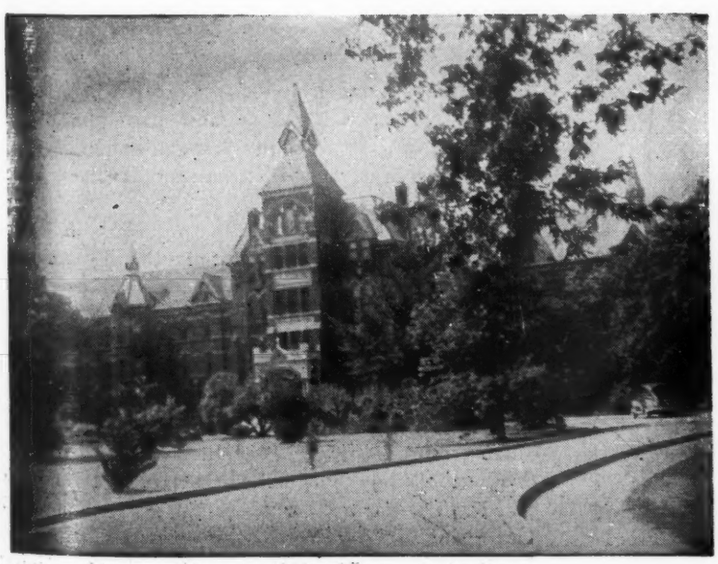

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PHYSICIANS CASUALTY AND HEALTH ASSOCIATIONS
OMAHA 2, NEBRASKA

(Continued from Page 600)

The statement, signed by Dr. Don Marshall and approved unanimously by the Academy, was issued in reply to a request for the Academy's position on the establishment of a third medical school somewhere in western Michigan. The request came from the Kamalazoo Chamber of Commerce as a result of the recent formation of a committee designed to study the possibility of locating the proposed school in Kalamazoo.

The complete statement follows:

"The Kalamazoo Academy of Medicine supports a study of the desirability, for the community, of someday establishing a medical school in this city. Considering the needs of the entire state, the Academy believes that it would be unwise to establish a third medical school in Michigan until the existing schools, particularly the Wayne University Medical School, have been expanded and augmented to the greatest practical degree. If future growth of population requires the establishment of a third medical school, and state authorities then decide that it should be in Western Michigan, the Academy feels that it would be entirely logical to locate it in Kalamazoo."

* * *

Medical Licensure. — There are twenty-one basic science boards in the United States. A report issued recently shows that the Michigan Board has examined 719 applicants, and has passed 542. This is not too far from the national average: 4,815 examined, and 3,941 passed.

National licensure for 1954 shows there were 7,917 new doctors of medicine and 3,667 died, making a gain of 4,250 during the year. The total number of licenses issued was 15,029. Of these 6,827 were by examination and 8,202 were by reciprocity, that is, transferred from other states, or boards. In Michigan, 440 persons were licensed (233 on examination and 207 by other boards) and accepted in 1954.

* * *

Since its inception in 1939, Michigan Medical Service has paid for services to its subscribers $172,071,543.53. There were 5,077,161 services paid for at an average of $33.89 per service.

* * *

A three-day anesthesiology conference designed for doctors in general practice and part-time anesthetists was held April 26, 27 and 28 sponsored by Wayne University's College of Medicine and Detroit Receiving Hospital.

The conference dealt with problems in choice of anesthesia, management, post-anesthetic complications. Cases dealing with specific problems were presented and discussed.

Four anesthesiology specialists from Virginia, New York and Michigan joined the Wayne medical school faculty in presenting latest developments and techniques in the field.

Guest speakers were Dr. D. W. Eastwood, professor of Anesthesiology, University of Virginia Medical School; Dr. M. H. Harmel, professor of Anesthesiology, State University of New York College of Medicine; Dr. L. Lewis, assistant professor of Anesthesiology, University of Michigan; and Dr. P. R. Dumke, director of Anesthesiology, Henry Ford Hospital.

The Michigan Electroencephalographic Society has been organized with its membership open to all persons in Michigan actively engaged or interested in encephalography and/or its allied sciences. The first meeting of the Society was held April 6 at the Lafayette Clinic in Detroit. Speakers were John Churchill, M.D., Detroit, on "Continuous Petit Mal Epilepsy"; Peter Beckett, M.D., Detroit, on "A Study of the Relationship between the EEG and the Various Aspects of Mental Deficiency." Garfield Tourney, M.D., Detroit, on "The Electrophysiology of Emotion."

The scientific program was followed by a business meeting, with election of officers and adoption of constitution and by-laws.

• • •

The Hawaiian Medical Society is celebrating its Centennial Anniversary in Honolulu the week of April 22, 1956. Special scientific programs during the week have been devised for the members of the Hawaiian Medical Society and their guests throughout the world.

The Michigan State Medical Society salutes the Hawaiian Medical Society on its achievements during the past 100 years.

• • •

"Best sellers" are two small folders containing reprints of Parke, Davis and Company advertisements on the cost of medical care.

Requests from doctors of medicine and pharmacists, to the total of 1,550,000 copies of the first folder: "Concerning one of the biggest bargains of your life . . ."; and for more than 500,000 copies of the second: "How much does it cost to keep him well today?" prove that the public is interested in good medical care—in keeping well—and in longer life.

A third folder: "The lady buys a bargain" is now being prepared by Parke, Davis. The indications are it will join the PD list of "best sellers."

• • •

President W. S. Jones, M.D., addressed the Jackson County Medical Society, April 17, on the topic, "Seventeen for You—Take Your Pick!" Dr. Jones also spoke to the Genesee County Medical Society in Flint on May 17, and will speak to the Gratiot-Isabella-Clare County Medical Society at Mt. Pleasant on May 29.

• • •

Leon DeVel, M.D., Grand Rapids, Medical Coordinator for the MSMS Rheumatic Fever Control Program, addressed the Marshall Health Council of Marshall, Michigan, on February 15. He talked to the Cadillac Rotary Club in Cadillac on February 21, and to the International Council on Exceptional Children in Battle Creek on March 10.

In Manistee, Dr. DeVel spoke to the Lay Health Committee on March 13; to the Leonard PTA in Grand Rapids on March 15, to the Ludington Health Committee of Ludington on April 2; and to the Monroe County Medical Society on April 3.

Dr. DeVel's topic was "Rheumatic Fever Control—What's Your Problem?"

• • •

Fred C. Swartz, M.D., Lansing, who has been ap-

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DESERVES
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It's an "OPEN AND SHUT CASE" for sandura

ILLUSTRATED — Welch Allyn Otoscope - Ophthalmoscope Set No. 983, complete with Sandura Case.

The new WELCH ALLYN instrument case that offers you far greater

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- CLEANLINESS
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The Sandura Case is molded in reinforced material to stand great shock or abrasion, with tarnish-proof soft rubber lining which protects instruments from shock. The entire case can be washed or sterilized with alcohol.

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pointed a member of the AMA Geriatrics Committee, attended its meeting in Philadelphia March 19-20.

Congratulations, Dr. Swartz!

* * *

The Michigan Chapter, American College of Surgeons, held an all-day meeting in Detroit coincident with the Michigan Clinical Institute, on March 6. Speakers included: M. O. Cantor, M.D., Homer M. Smathers, M.D., Ward M. Smathers, M.D., E. B. Miller, M.D., G. Peter Halekas, M.D., C. Paul Hodgkinson, MD., I. A. Swinehart, M.D., Howard P. Doub, M.D., A. H. Veldhuis, M.D., Lawrence Wm. Gardner, M.D., Wm. F. Dwyer, M.D., John J. Corbett, M.D., Harry C. Saltzstein, M.D., Howard Manz, M.D., Norman Swingle, M.D., John William Derr, M.D., John Reid Brown, M.D., D. Emerick Szalgyi, M.D., Roger F. Smith, M.D., Thomas Geoghegan, M.D., Charles Sergeant, M.D., Conrad R. Lam, M.D., John H. Whitcomb, M.D., P. W. Pifer, M.D., M. A. Block, M.D., Robert D. Larsen, M.D., Joseph L. Posch, M.D., Sydney K. Beigler, M.D., all of Detroit; James H. Beaton, M.D., Grand Rapids; Wm. C. Baum, M.D., Ralph Straffon, M.D., and Joe D. Morrison, M.D., Ann Arbor; and H. Mortimer Bishop, M.D., Saginaw.

The scientific sessions were followed by a reception and banquet, under the presidency of George J. Curry, M.D., Flint.

* * *

Alfred Jay Bollet, M.D., of Detroit, recently was appointed one of twenty-three Markle Scholars in Medical Science. Dr. Bollet will do research work in internal medicine at Wayne University College of Medicine, Detroit.

Congratulations, Dr. Bollet!

* * *

American Medical Education Foundation.—Nine hundred and one doctors of medicine in Michigan contributed a total of $45,896.49 to AMEF during 1955. This included 161 who sent $14,859.59 to AMEF direct and 740 M.D.'s who contributed $31,036.90 to specific medical schools of which they are alumni.

Michigan stood twelfth among the states in contributions.

* * *

Russell Kirk, in the *Wall Street Journal* of February 1, wrote an illuminating article entitled "Britain's State Medicine Poses Problems for Physicians—and for Nation's Health."

Quotable sentences include:

"Whatever is free tends to be held cheap."

"There are limits on how much any state can afford to spend simply on health-schemes."

"What has been adopted in Britain, and what is sometimes proposed in the United States, is a doctrinaire nineteenth-century solution, socialized medicine, to a problem the terms of which have altered immensely in the twentieth century. In a society of material abundance, state medicine is an obsolete answer."

(Continued on Page 606)

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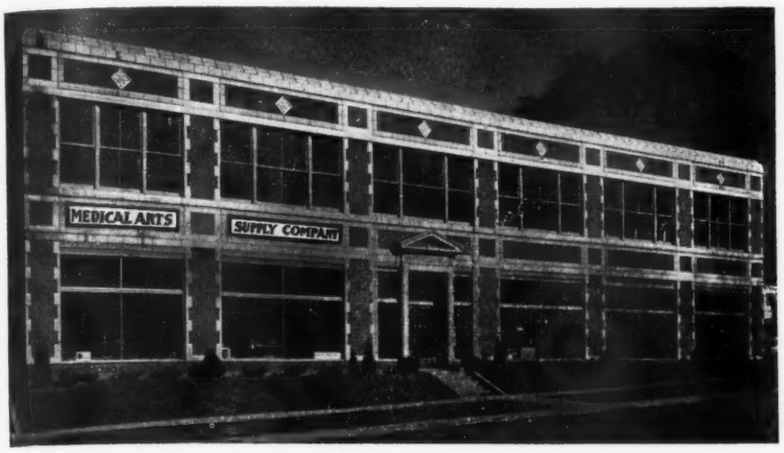

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We know that today's physician recognizes the many-sided nature of the disease—Alcoholism. Beyond the physical, which requires expert treatment in itself, the alcoholic's physician is plagued, we know, with the equally vital aspects, which make demands on his time and attention, of the emotional, spiritual and mental sickness he notes in his patient.

We believe that Brighton Hospital offers the answer. Physicians can now send their alcoholic patients to Brighton with the certain assurance that they will find expert medical and nursing attention AND that, if they so desire, patients will be thoroughly indoctrinated with the program of Alcoholics Anonymous.

BRIGHTON HOSPITAL is NOT interested in the patient who merely wishes to be dried out in order to resume drinking. We ARE interested in those patients who really, fervently, seek complete rehabilitation and a way of life FREED from alcohol.

BRIGHTON HOSPITAL is owned and operated by MICHIGAN ALCOHOLIC REHABILITATION FOUNDATION, a non-profit organization devoted to the best possible hospitalization of the alcoholic who seeks to stop drinking.

DOCTORS, we are here to serve you. We are here to serve your patients.

BRIGHTON HOSPITAL

12851 East Grand River Avenue Brighton, Michigan Phone: Brighton Academy 7-1211

(Continued from Page 604)

New Kinescopes available for purchase or loan from the Michigan Division or Southeastern Michigan Division, American Cancer Society, include the following:

"Cancer of the Prostate," running 50 minutes, 2 reels (Program No. 3).

"Cancer of the Oral Cavity," 35 minutes, 1 reel (Program No. 11).

"Cancer of the Thyroid," 29 minutes, 1 reel (Program No. 12).

"Lymphomas and Leukemias," 55 minutes, 2 reels (Program No. 14).

"Cancer of the Urinary Bladder," 48 minutes, 2 reels (Program No. 23).

"Moles and Melanomas," 49 minutes, 2 reels (Program No. 25).

"The Psychological Aspects of Cancer," 39 minutes, 1 reel (Program No. 29).

For purchase or rental of above Kinescopes, write the Michigan Division, ACS, 21 Ottawa Avenue, N.W., Grand Rapids, or the Southeastern Michigan Division, ACS, 4811 John R., Detroit, Michigan.

* * *

The AMA's 105th Annual Session will be held in Chicago June 11-15, 1956. Headquarters for House of Delegates will be at the Palmer House; the exhibits and meetings will be at Navy Pier.

The Fourth International Congress on Diseases of the chest will be held in Cologne, Germany, August 19-23, 1956. For information, write American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

* * *

Did you know that one person in every seventy-five is diabetic?

* * *

The Fifth Annual Symposium for General Practitioners on Tuberculosis and other Chronic Pulmonary Disease will be held at Saranac Lake, New York, July 9-13 (approved for twenty-six hours of formal credit for members of AAGP).

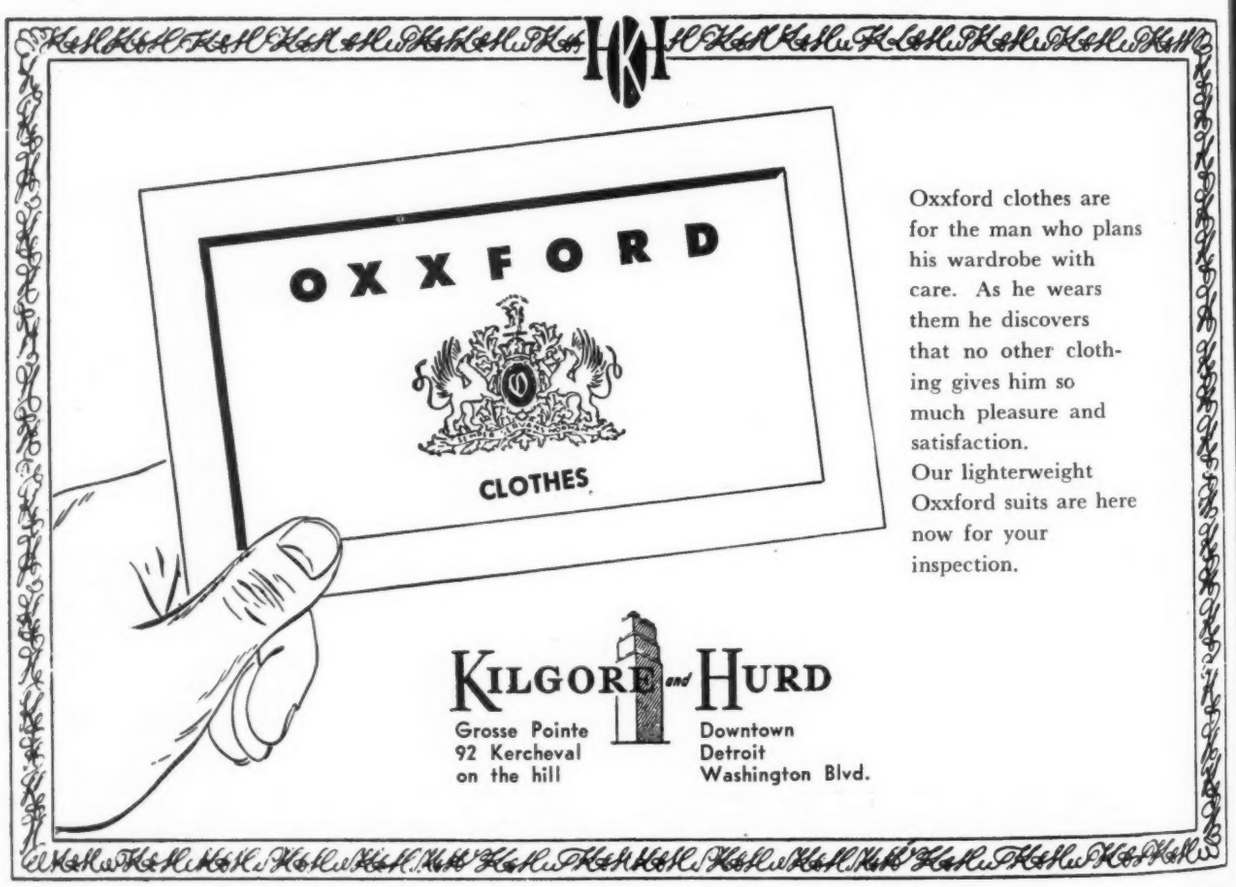
For information and complete program, write Edward N. Packard, M.D., P.O. Box 262, Saranac Lake, New York.

* * *

Medical Aid Bill Backed.—The House Armed Services Committee Tuesday *approved a bill to provide Government-paid hospital and medical-care insurance for service men's families.*

The bill would not halt the present treatment of dependents in military facilities.

But Chairman Kilday (D., Tex.), of the subcommittee that worked out the new measures, said it would benefit especially an estimated 40 per cent of service families who now live too far from military facilities to be able to use them.—*Detroit Free Press*, February 22, 1956.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CLOTHES
Oxxford clothes are for the man who plans his wardrobe with care. As he wears them he discovers that no other clothing gives him so much pleasure and satisfaction.
Our lighterweight Oxxford suits are here now for your inspection.
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Relax the best way ... pause for Coke

continuous quality is quality you trust

DRINK Coca-Cola
REG. U.S. PAT. OFF.

Grace Hospital Reunion—Saturday, June 2, 1956.—The afternoon session will be held in Main Hospital from 1 to 5 o'clock and will include subject presentations, round tables, panel discussions, and exhibits.

In the evening physicians and their wives are invited to enjoy cocktails, dinner, and dancing at the Sheraton-Cadillac Hotel, from 7:30 to 1 o'clock. Tickets are $10 per person.

Please contact Robert E. Bogue, M.D., 15800 West McNichols Road, Detroit 35, for reservations.

* * *

The Upper Peninsula Medical Assistants Society will hold a meeting at the Country Club, Sault Ste. Marie, Michigan, Saturday, June 23, 1956. Program will begin at 9:00 a.m. with registration. In addition to the afternoon business meeting, talks will be given by J. Joseph Herbert, LL.D. on "Legal Problems in the Doctor's Office" and L. Fernald Foster, M.D. on "Your Professional Relations are Showing." Smorgasbord dinner will be served at 7:00 p.m.

* * *

The Fifty-fifth Annual Meeting of the American Proctologic Society will be held at the Hotel Statler, Detroit, Michigan, June 6-9, 1956. The Scientific Sessions of this meeting are open to all members of the medical profession.

Program includes Symposia on "Extra-medical Problems," "Postoperative Diarrheas and Infections" and "Physical Agents Used in the Treatment of Anorectal Diseases." For program and additional information, contact Karl Zimmerman, M.D., 3500 Fifth Avenue, Pittsburgh 13, Pennsylvania.

* * *

Harry J. Loynd, president of Parke, Davis & Company, recently was named "Foreign Trader of the Year" by the Foreign Trade Club of Detroit. Mayor Albert E. Cobo of Detroit presented the award to Loynd at a special dinner-meeting of the Foreign Trade Club in the Fort Shelby Hotel, May 17.

Congratulations, P. D. President Loynd.

* * *

The Children's Bureau recently announced a special federal grant of $55,000 to help the Michigan Crippled Children Commission treat child amputees from other states. Under the new arrangement, children from any part of the country where adequate state or local treatment is not available may be treated at the MCCC Child Amputee Center in Grand Rapids, upon recommendation of the crippled children's agency in the child's home state and acceptance by the Michigan agency.

The Children's Bureau statement, announcing the program, declared "Michigan is believed to have more experience in treating children with congenital or accidental amputation than any other state." Carleton Dean, M.D., heads the Michigan Crippled Children Commission.

Cook County Graduate School of Medicine

INTENSIVE POSTGRADUATE COURSES
STARTING DATES—SPRING & SUMMER, 1956

SURGERY—Surgical Technique, two weeks, June 4, July 23
Surgical Anatomy and Clinical Surgery, two weeks, June 18
Surgery of Colon and Rectum, one week, June 18
General Surgery, two weeks, September 10
Thoracic Surgery, one week, June 4
Esophageal Surgery, one week, June 11
Breast and Thyroid Surgery, one week, June 18
Gallbladder Surgery, ten hours, June 25
Fractures and Traumatic Surgery, two weeks, June 18
Varicose Veins, ten hours, June 18

GYNECOLOGY—Office and Operative Gynecology, two weeks, June 18
Vaginal Approach to Pelvic Surgery, one week, June 11

MEDICINE—Electrocardiography and Heart Disease, two-week basic course, July 9
Gastroscopy and Gastroenterology, two weeks, September 10

RADIOLOGY—Diagnostic X-ray, two weeks, September 17
Clinical X-ray, two weeks, by appointment

PEDIATRICS—Neurological Diseases: Cerebral Palsy, two weeks, June 18

UROLOGY—Two-week Course, October 8
Cystoscopy, ten days, by appointment

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL

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Offers to the elderly and chronically ill

Peace and quiet. Freedom of a large and richly furnished home and acres of lawns and wooded rolling grounds, scientifically prepared tasty meals, congenial companionship. A real

"Home away from Home"

Approved by the American Medical Association and Michigan State Department of Social Welfare—Highly recommended by members of the Medical Profession who have had patients at the Lodge.

For further information write to:

SAMMOND PLEASANT LODGE

124 West Gates Street

Romeo, Michigan

Senator Charles E. Potter of Michigan has been awarded the Parents' Magazine Medal for Outstanding Service to Children in recognition of his continuing efforts on behalf of the welfare of children. The Senator was instrumental in increasing Federal appropriations for Grants-in-Aid by some 38 per cent in 1955.

Senator Potter *(right)* receives the Children's Service Medal in recognition of his efforts on behalf of the welfare of children.

As one of the results of this, the Mary Free Bed Children's Hospital and Orthopedic Center in Grand Rapids is able to offer treatment to child amputees from any part of the country when adequate local facilities or monies are not available.

* * *

Milton A. Darling, M.D., Detroit, was official representative of the Michigan State Medical Society and of the Wayne County Medical Society, as well as representative of MSMS President W. S. Jones, M.D., at the Centennial Convention of the Michigan State Dental Association. Dr. Darling brought greetings from the medical profession of Michigan to the Dental Association when it convened at its 100th annual session in Detroit on April 16. He also expressed the congratulations of the medical profession to the Dental Association members at the Masonic Temple Centennial Banquet of April 18.

* * *

The importance of environmental factors upon morbidity and mortality of tuberculosis has long been recognized. In a disease where the invasive powers of the agent are in such delicate balance with resistance of the host, factors which substantially augment the virulence of the causative organisms or depress the resistance of the host logically will determine the trends of the disease.—ALTON S. POPE, M.D., and JOHN E. GORDON, M.D., Am. J. Med. Sciences, Sept., 1955.

At the Third National Cancer Conference in Detroit on June 4-5-6, every facet of cancer control, education and research will be discussed by eminent clinicians and teachers from all parts of the world. Foreign speakers include Ivor G. Williams of London, England; Erling Dahl-Iverson, Copenhagen, Denmark; L. M. Franks, London, England; Walter B. Quisenberry, Honolulu, T. H.; Komei Nakayama, Chiba, Japan; Abdol Islami, American Mission, Iran; Alexander Haddow, London, England; Albrecht Schmitt, Cologne, Germany; and Ernst Navatril, Graz, Austria.

Michigan doctors of medicine on the program include Reed M. Nesbit, Ann Arbor; Arthur J. Vorwald, Detroit; Robert C. Horn, Jr., Detroit; Carl V. Weller, Ann Arbor; Norman F. Miller, Ann Arbor; Harry M. Nelson, Detroit; and Isador A. Lampe, Ann Arbor.

Well over 200 leaders in cancer education are on this stupendous program.

On Monday evening, June 4, a workshop on cancer registries will be held for discussion of problems surrounding the establishment of new cancer registries and the modification of existing ones to meet the present requirements of the American College of Surgeons; this session will largely concern itself with the administrative problems of newly formed registries in small to medium-sized hospitals.

The National Cancer Conference is under the sponsorship of the American Cancer Society, in co-operation with its two Divisions in Michigan and the Michigan Cancer Co-ordinating Committee (of which the Michigan State Medical Society is a member). The entire program will be held in the Sheraton-Cadillac Hotel, Detroit, on June 4-5-6.

* * *

The Conference on Aging to be held in Ann Arbor, July 9-11, 1956, will deal with the topic "Health for the Aging," medical and social services. It is being planned by members of the Geriatrics Committee of the Michigan State Medical Society, the Departments of Postgraduate Medicine and Gerontology of the University of Michigan.

A large part of the meetings will be devoted to clinics for doctors of medicine dealing with specific diseases in elderly patients. There will also be groups dealing with the many other problems in the gerontologic field—e.g., geriatric education in medical schools and hospital training programs; the many social and psychologic aspects of the older person; rehabilitation of the physically and mentally handicapped, as well as a consideration of the standards and activities in nursing homes and homes for the aged. In each group, there will be persons of experience and ability so that a highly, successful and stimulating conference will be assured.

Research Seminars will also be held at which the Biologic aspects of aging, medical research problems and the social psychologic viewpoints will be discussed by outstanding research scientists of national reputation.

Final program will be available in the June number, JMSMS. For information, contact A. Hazen Price, M.D., Chairman, MSMS Geriatrics Committee, 62 W. Kirby Avenue, Detroit 2.

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*Fishberg, A. M.: Hypertension and Nephritis, ed. 5, Philadelphia, Lea & Febiger, 1954, pp. 177-178.

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In Memoriam

William A. Defnet, M.D., a physician in Detroit since 1911, died February 1, 1956, at the age of seventy. He was born in Escanaba; received his M.D. degree at Detroit College of Medicine (Wayne University); served his internship at Harper Hospital. His specialty was eye, ear, nose, and throat.

Osborn H. Ensing, M.D., who had been in active practice of obstetrics and gynecology in Detroit for thirty-three years, died December 17, 1955, at the age of sixty. He was born in Kalamazoo; received his M.D. degree at the University of Michigan; interned at Grace Hospital, Detroit.

George E. Frothingham, M.D., Detroit eye, ear, nose, and throat physician, died November 23, 1955, at the age of eighty-eight. He was born in Gray, Me.; attended the University of Michigan; graduated from the Detroit College of Medicine; served his internship at Harper Hospital. His father, for whom he was named, founded the eye, ear, nose, and throat department at University of Michigan Medical School.

Robert W. Gillman, M.D., pioneer Detroit ophthalmologist, died January 17, 1956, at the age of ninety. He was born in Detroit; graduated from Wayne University College of Medicine; established private practice in 1889.

Frederick J. Hohn, M.D., of Saginaw, died November 6, 1955 at the age of seventy-six. He was born in Caro; received his M.D. degree at Michigan College of Medical Science; became a member of the MSMS Fifty-Year Club in September, 1955.

George H. Kaven, M.D., practicing physician at Unionville since 1908, died November 9, 1955, at the age of eighty. He was born near Unionville; graduated from the Chicago College of Medicine and Surgery (now Loyola University); served his internship at Chicago Lying-In Hospital. He was a Life Member of MSMS.

Gordon D. Ogilvie, M.D., of Manistee, who established practice in Manistee in 1937, specializing in eye, ear, nose and throat, died December 20, 1955, at the age of forty-six. He was born in Arenac County, Michigan, received his M.D. degree at the University of Western Ontario.

Clarence E. Simpson, M.D., Detroit obstetrician and gynecologist since 1906, died December 10, 1955, at the age of seventy-eight. He was born in Sherman, N. Y.; received his M.D. degree from Detroit College of Medicine (Wayne University); served his internship at Harper Hospital. He was a former president of the Wayne County Medical Society; Life Member of MSMS.

Walter R. Snow, M.D., lifelong resident of Jackson and practicing physician there for fifty years, died December 25, 1955, at the age of seventy-seven. He attended the University of Michigan and graduated from the Detroit College of Medicine (Wayne University).

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(Continued from Page 586)

specifications attached to the gift (to be presented to the Foundation Trustees on January 25).

On December 5, 1955, the Ingham County Medical Society also allocated $6,000 to the Student Loan Fund, with certain specifications attached (to be presented to the Foundation Board of Trustees on January 25).

The Michigan Foundation for Medical and Health Education Lecture, to be given on the occasion of the 1956 Michigan Clinical Institute (with the speaker's expenses to be paid out of the Biddle Fund of the Foundation) will be presented on March 7, by Alton Ochsner, M.D., of New Orleans, who will speak on "What's New in Lung Cancer."

The Biddle Lecture, given on the occasion of the 1955 Michigan State Medical Society Annual Session (with the speaker's expenses paid out of the Biddle Fund of the Foundation), was presented in Grand Rapids on September 28 by Charles L. Anspach, Ph.D., President of Central Michigan College of Education. His highly inspirational and interesting address was titled "Forever Sacred."

The Student Loan Fund has been utilized in the sum of $11,620.50, to aid the medical education of the following students:

Robert E. Pearson	Wayne University
L. Edmond Eary, Jr.	University of Michigan
Benjamin F. Koepke	Wayne University
Donald P. Jackson	Wayne University
John C. Shelton	University of Michigan
Robert O. Webster	University of Michigan
Russell F. Smith	University of Michigan
Paul C. Linnell	University of Michigan

Respectfully submitted,

WM. J. BURNS, *Secretary*

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TRICKS AGAINST OLD AGE

(Continued from Page 546)

enterprising people, is the surest sign of coming old age.

I cross my fingers and knock (three times) on wood, experiencing an *active* tranquility.

Why not? For years I've been one of the non-institutionalized insane, free and at large by the grace of God. A foggy end in a Veteran's Hospital has been my fear. But now I've watched Dr. John Ferguson, throwing his safe, powerful, beneficent one-two punch—awakening and at the same time tranquilizing—at hundreds of a hitherto hopeless residue of chronic mentally ill. For many, a chemical door has been opened; then, aided by the psychotherapy of the hospital's devoted nurse-attendants, I've seen them go back, awakened, out of the darkness to the light, to reality, to useful life. *Rehabilitated.*

If Ferguson and his staff can do this for many of this sad chronic rear-guard, how much greater is the opportunity for you general practitioners, you family doctors? You see mental trouble in its early stages. There seems to be high hope that you'll keep many of the mentally disturbed—young and old—from the tragedy of commitment to mental hospitals.

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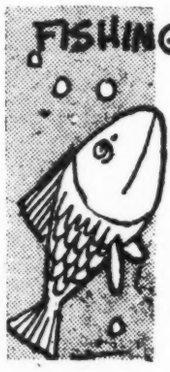

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Acknowledgment of all books received will be made in this column, and this will be deemed by us as full compensation to those sending them. A selection will be made for review, as expedient.

POLIOMYELITIS. Papers and Discussions Presented at the Third International Poliomyelitis Conference. Compiled and edited for the International Poliomyelitis Congress. Philadelphia and Montreal: J. B. Lippincott Company. Price $7.50.

This record of the Third International Poliomyelitis Congress reminds one of that excellent TV program "You Are There." The only difference is that this is in book form and having been put together in the same sequence as the actual proceedings, takes good reading time for two reasons: first it is lengthy since it contains all the presentations and discussions in their actual sequence and secondly, it keeps the reader interested and not wishing to cease reading due to the feeling that one is in the actual meeting and midst of the proceedings.

This is really the best substitute for not actually attending the conference itself. It brings one up to date (1954) with the latest ideas, works, research and problems encountered all over the world. It is most interesting to see the different aspects of this problem as given by others from all over. The Conference covers the social aspects of Polio, acute medical care, infection and immunity, development in tissue culture, orthopedics, physical medicine and rehabilitation, trends in Polio. All the scientific exhibits are included.

J. L.

PHYSICIAN'S FEDERAL INCOME TAX GUIDE. For the Preparation of 1955 Tax Returns and 1956 Estimates. By Hugh J. Campbell and James B. Liberman. Edited by Henry D. Shereff. Great Neck, New York: Channel Press, Incorporated, 1956. Price, $2.50.

BUTAZOLIDIN. 100 Million Patient Days of Therapy. A Review of the Clinical Experience. Pamphlet.

ALBERT C. FURSTENBERG, M.D.

(Continued from Page 585)

a face full of gravel. If his horse cannot keep ahead, he gets another one." Some of his friends, however, see signs that he may soon slow down during his vacation periods. For years he has, during these times, taken the neighbors' little children for a swim and romp in Crystal Lake. These youngsters have grown up rapidly and it is now a toss-up who will get dunked.

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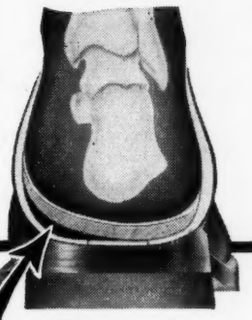

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*Moyer, J. H., and Hughes, W. M.: J. Chron. Dis. 2:678, 1955.

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